

FISHERY MARKET NEWS

JUNE 1945

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ISSUED BY THE
UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
WASHINGTON



FISHERY MARKET NEWS

A REVIEW OF CONDITIONS AND TRENDS OF THE FISHERY INDUSTRIES

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June 1945

Washington 25, D. C.

Vol. 7, No. 6

WAR-TIME STUDIES OF CONTAINERS AND SUBSTITUTE CONTAINERS FOR FRESH FISHERY PRODUCTS

By S. R. Pottinger,* E. F. Kapalka,** and C. F. Shockey**

Soon after the attack at Pearl Harbor, with the subsequent rapid increase in need for steel for use in re-armament and the cutting off of our principal sources of tin, it became apparent that the production of tinplate for civilian use would be curtailed. Those industries depending largely upon the use of individual metal containers for the marketing of their products would be most affected by the impending shortage, since the principal use of tinplate is in the manufacture of containers. Among these are the commercial fisheries producing such products as oysters, clams, shrimp, crabmeat, lobster meat, and fish fillets, all of which in normal times are packed almost entirely in tinplate containers.

In the late spring of 1942, because of an early anticipated shortage, a trade organization representing the oyster industry requested the Fish and Wildlife Service to attempt to find suitable substitutes for metallic containers for fresh-shucked oysters. Other branches of the industry devoted to the production of fresh fishery products were soon making similar requests. Along with the shortage in metal for use in packaging fresh fishery products, a shortage of tin cans for processed products was also expected, and it soon became evident that shortages of shipping containers might restrict the production and movement of fishery products.

In 1942, Congress made available to the U. S. Fish and Wildlife Service a special appropriation to be used in the conduct of studies intended to alleviate these and other shortages, such as cordage fibers and agar, by finding suitable substitutes or alternate materials. The purpose of this report is to summarize the studies which were made to find substitutes for containers.

Summary of Findings--1. For packaging fresh-shucked oysters, only one suitable commercially-produced fibreboard container was found, and production of this container was discontinued soon after studies were begun. Exacting requirements of rigidity and watertightness made most types of containers unsatisfactory. Bags were impractical because of lack of rigidity.

2. Satisfactory substitutes of chemically-treated blackplate and of combination waxed fibreboard and chemically-treated blackplate were developed for shipping fresh-shucked oysters.

3. Tests with chilled picked crabmeat indicated that containers for this type of product do not need the extremely high rigidity and resistance to water penetration required for fresh-shucked oysters. A suitable substitute container of heavily-waxed fibreboard was found. Bags were impractical. Chemically-treated blackplate was satisfactory.

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4. Two commercially-produced 5-pound containers of heavily-waxed fibreboard were found to be satisfactory for chilled cooked shrimp. Chemically-treated blackplate cans gave satisfactory results.

5. The only fibreboard fillet box being commercially produced was tested and found to be reasonably satisfactory. Several prospective boxes also were satisfactory, particularly those constructed of so-called V-board. Chemically-treated blackplate fillet containers proved to be satisfactory.

6. Various materials were tested or considered for use in the fabrication of containers for fishery products in general. Among these materials were plastics, wood products, and specially-coated papers.

7. War conditions handicapped the development and supply of substitute containers. A fairly adequate supply of containers was maintained through the period covered by this report by allocation of the main supplies, early ordering to cover anticipated needs, and close contact with all sources of supply for substitute containers. Sufficient metal containers were usually available for distant shipments. When use of chemically-treated blackplate was permitted, allotted supplies of this material promised relief of at least the most serious shortages.

8. Tests indicated no appreciable difference in the keeping quality of crabmeat in heavily-waxed fibreboard containers and metal cans. Experiments in icing of crabmeat and shrimp for shipment indicate the method of icing has much to do with the temperature of the meat in the cans and its keeping quality.

9. Weight tests of crabmeat in containers showed a small decrease of net weight in both tin and fibreboard between time of packing and after shipping and storage. While in storage, however, the change was negligible. Shrimp lost a small amount of weight when stored in fibreboard but had no apparent loss in tin.

10. No appreciable difference was noted in the keeping quality of fish fillets stored in fibreboard and chemically-treated blackplate.

11. Many experiments were made to determine methods and qualifications for shipping fresh fish fillets with dry ice.

12. Periodic surveys were made of supplies of wooden boxes and barrels available for shipping seafoods. In general, shortages of these shipping containers occurred locally and at irregular intervals, if at all.

Discussion--While a great proportion of the findings obtained during the course of this investigation were negative, they nevertheless were of definite value to both the fishing industry and certain Governmental agencies concerned with the allocation of critical materials. It was shown that many of the types of substitute containers which were being produced were entirely unsatisfactory for packaging and shipping fresh fishery products. Furthermore, those containers which were found to be reasonably satisfactory for this purpose were generally definitely limited in quantity, and therefore could only partly fill the demand for seafood containers. Finally, it was shown that commercial production of some types of satisfactory substitute containers was impossible due to shortages of practically all materials required in their construction. While such results did not serve directly to provide entirely suitable non-metallic containers in great quantities, certain types of such containers were found and made available to the fishing industry in sufficient quantities to permit relatively large-scale use.

Probably one of the most important outcomes of the investigation was the information obtained in regard to availability of containers, both those which were satisfactory and those found to be unsuitable. This information was of great value to the War Production Board in the preparation of conservation orders. Prior to the issuance of such orders, conferences were usually held between that agency and technologists of this Service for the purpose of establishing some figure to represent as nearly as possible the need for containers by the various fisheries. Data on the suitability of substitute containers, availability of the more suitable types, estimated requirements by the fishing industry for various sizes and types, and information regarding developments in the container field

were presented by the Service's technologists at these meetings. This information aided materially in guiding the WPB in establishing quotas and allocating a sufficient quantity of containers to the fishing industry. Certain hardships in the industry, such as shortages in the proper types of containers, were alleviated or prevented by permitting, at times, extensions of the use of tin. Results of these studies had a bearing on the decision of the WPB in permitting the use of chemically-treated blackplate for shucked oysters and, later, for certain other varieties of seafood.

The results of the investigation made with substitute containers for packaging and shipping fresh fishery products thus aided materially in maintaining production and distribution of fishery products and preventing loss of food during the critical stages of the war.

Descriptions of the various studies undertaken in the course of the container project are itemized in the following sections:

SECTION 1. SUITABILITY OF CONTAINERS AND THE WAR-TIME SUPPLY

Method of Study--The first phase of the investigation was to conduct research to develop a new type of package. The second was to ascertain as far as possible the types of containers which were already in production and determine their suitability by appropriate tests. These were combined to make recommendations for improvement and apply newly-developed materials and processes. The need for non-metallic containers was becoming acute due to restrictions being placed on the use of metal by the WPB. Furthermore, the development of an entirely new product not only might require an extended period of research with questionable success, but would also probably require new machinery for production which would be difficult or impossible to obtain.

The problem of production of new containers would be further complicated, as was found out later in the course of the investigation, by the reluctance of manufacturers to invest money in expensive machinery for fabricating a product for which the demand was rather uncertain and particularly for one which was considered to be at best a temporary substitute for a product ordinarily available. It was, therefore, believed that by maintaining close contact with the container manufacturers, testing their products and suggesting improvements, and informing them of newly-developed materials which may be used in the fabrication of improved containers, much more could be accomplished in the relatively short period of time the critical stages of the metal shortage were expected to last.

In the initial phases of the investigation, fibreboard containers were given first consideration since it appeared that metal would soon be prohibited entirely for containers for fresh fishery products. The use of glass was also considered, but due to the liability to breakage, danger from chipping, extra weight, and extra care required in handling and packing for shipment, it was thought advisable to postpone studies of these containers. While it is true that glass containers have been used for a number of years on the Pacific Coast for shipping oysters, only the smaller sizes have been used, and the volume of oysters handled has been comparatively small. Furthermore, the demand for glass containers for other foods was extremely heavy, with orders at times running far ahead of production. Gradually it became apparent, however, that in certain instances the WPB would allow limited use of lacquered chemically-treated blackplate for containers when satisfactory non-metallic substitutes could not be found.

In addition, the possibility of using plastic materials, special fibreboard or papers, water-resistant coatings, and improved adhesives was examined. The use of many such materials was prohibited or limited since they were required for war use.

A total of 305 manufacturers or distributors of containers of various types and materials, plastics, adhesives and laminants, special boards and papers, and water-resistant coatings were contacted during the course of this investigation. Samples were obtained whenever possible for examination, and any products which appeared to have possibilities for use in packaging fresh fishery products were given preliminary tests in the Laboratory. The more promising were then subjected to shipping tests to determine their suitability under actual shipping conditions. As a result of these laboratory and practical tests, weaknesses which appeared in the containers were brought to the attention of the manufacturers, with suggestions and recommendations for making improvements in the products.

As a part of the plan of study, fibreboard and container manufacturers were appraised of possible use of new products such as plastic sheets, water-resistant coatings, and improved laminants and adhesives, which were found in laboratory tests to possess properties which might be desirable in seafood containers. These materials were in several instances used in test runs by the container manufacturers, and in some cases were incorporated in the regular line of products.

Results of Tests--The requirements for a container used in packaging and shipping fresh fishery products are very severe as compared to those for other food products. A seafood container is not only exposed to the action of moisture or water from within, but is generally kept packed in melting crushed ice from the time of filling by the producer until sold by the retailer. During this time, it is usually subjected to considerable rough handling. The container must therefore be highly resistant to water penetration, should not soften to any great extent on continuous exposure to water, and should have sufficiently high crushing strength and toughness to withstand the weight and abrasive action of crushed ice and other containers with which it is packed for shipment. In addition, the containers for some fresh fishery products must be watertight.

Having these requirements in mind, a large number of containers and materials were examined and tested. As a result, a limited number of types as well as sources of supply of containers suitable for shipping several varieties of fresh seafood were found.

FRESH-SHUCKED OYSTERS--Due to the relatively large amount of liquor usually present with fresh-shucked oysters, the problem of finding a suitable non-metallic container for shucked oysters was found to be the most difficult of the packaging problems encountered in the container investigation. Ordinary waxed fibreboard in contact with water on one side only will resist softening to a fair degree. When exposed to water on both sides, however, as with an oyster container, rapid absorption occurs and the board becomes very soft and can be easily crushed. Furthermore, a container for shucked oysters must be watertight and in some instances must have a "tamper-proof" or sealed cover.

The findings reported herein apply to containers for shucked clams and mussels, as well as oysters.

Fibreboard--Several brands and types of fibreboard containers were tested for use in packaging fresh-shucked oysters. Among those first tested was a heavily-waxed, spirally-wound fibreboard container which had been used for a number of years in the food industry. Preliminary tests made in the Laboratory showed these containers to withstand exposure to water exceptionally well. Consequently, shipping tests were made with pint and quart sizes under conditions encountered in commercial practice from an oyster shucking house in Rhode Island to the College Park Laboratory. The containers were examined and then re-shipped to Rhode Island for further examination. They were found to hold up reasonably well in this test. Another shipment was made from Norfolk, Virginia, to an army base in Louisville, Kentucky, and was reported to be received in an excellent condition. A short time after these tests were made, however, production of this type of container was abruptly stopped due to labor conditions and was not resumed.

Several other types and brands of all-fibreboard spiral containers were tested in the Laboratory. These included various combinations of fibreboard, wax, cellophane, and parchment. Upon short exposure to water, the containers were found to soften and could be easily crushed, the cellophane loosened and peeled off, mold growth took place rather rapidly beneath the parchment liner, unwinding or complete separation of the plies often occurred due to failure of the adhesive, and leaks often developed around the lower crimped seam. Of all of the types tested, two brands of heavily-waxed fibreboard containers were the only ones considered to be sufficiently strong to warrant use in a shipping test. One brand was tested in a shipment from Norfolk, Virginia, to an army base in Illinois. Although the containers were still intact upon arrival, they were reported to be quite soft. It was therefore not considered advisable to recommend the use of these containers for shipping oysters long distances.

As a result of conferences with the manufacturer, the weaknesses which were found to be present in these containers were brought out, with suggestions that a heavier board and more water-resistant adhesive be used. Several months later, a heavier type of gallon-size container was produced by this company, but due to the closing of the oyster season, no shipping tests were made at that time. A shortage of fibreboard was becoming apparent at the opening of the new season; consequently, no further tests were made with this container.

Shipping tests made with another brand of waxed all-fibreboard spiral container were not very successful due to extreme softening. Since the output of the manufacturer

was quite limited, and no new orders were being accepted, further tests were not considered necessary.

Considerable interest was shown by a manufacturer of spiral containers. This company submitted a number of specially made samples for test purposes. As no heavily-waxed containers were being made by this concern, the samples were either of the lightly-waxed type, or of this type lined with cellophane. The lightly-waxed containers softened rapidly and came apart generally when exposed to water; those with the cellophane liners were only slightly better, as the cellophane soon loosened and allowed water to come into contact with the fibreboard. The top and bottom crimped seams also weakened rapidly when wet. These faults were brought to the attention of the manufacturer, and a new lot of cellophane-lined fibreboard containers having cemented crimped seams, presumably more watertight, was submitted. No improvement in quality over the previous lot was found when tested. Several other attempts were made to overcome the weaknesses in these containers, but no success was attained.

Two other brands of lightly-waxed, spirally-wound all-fibreboard containers were tested, but due to rapid and extreme softening in the presence of water, they were entirely unsatisfactory. No further tests were made since the manufacturers had no facilities for further improving the containers.

Waxed fibreboard containers of the types generally used for cottage cheese were tested. One type has a "snap-on" fibreboard cover and the other, a fibreboard disk which fits into the top of the container. When the containers were held in melting crushed ice, the "snap-on" cover softened rapidly and would not remain in place, while the other type of cover softened, and was forced into the container under slight pressure from the ice. These containers were also of very light construction, and obviously were not suitable for use in shipping shucked oysters.

Bags--As a result of the contacts made with container manufacturers, several concerns submitted samples of bags for test purposes and examination. Several types of bags were submitted, such as cellophane of various grades, glassine, combination of glassine and cellophane, plastic-coated materials, and impregnated papers of various kinds. Preliminary tests indicated that the use of bags alone was impractical due to difficulty of sealing or closing securely, failure of the seams to hold properly, and bursting due to external pressure or abrasion by ice or other containers. Obviously, a rigid protective container of some kind is required in addition to the bag. Various combinations of bags and fibreboard containers were tested, but due to softening in ice, failure of bag seams, and complications involved in sealing and handling, it was thought inadvisable to carry on further work with this type of container except in extreme emergency.

Fibre-metal--Inasmuch as the top and bottom crimped seams of all fibreboard containers softened and uncrimpled rather quickly, thereby weakening the entire container, it was thought that metal ends used in combination with a spirally-wound fibreboard body would produce a satisfactory container having some of the advantages of a metal can, and at the same time requiring a minimum of metal in its construction. Consequently, a number of manufacturers of containers of this type were contacted. It was found, however, that practically all of the containers of this type were quite small and were suitable only for dry or greasy products. The existing equipment used in their manufacture was not adaptable to the production of containers for wet products. One company which made a container that appeared to be suitable for such products had a very small and limited output which was being taken for other necessary purposes.

A company which had previously submitted samples of cellophane-lined fibreboard containers for examination was approached and agreed to prepare special samples of metal-end fibreboard containers for test purposes. The samples which were sent were of the cellophane-lined type which in previous tests had softened very rapidly in the presence of water. These samples were likewise found to be unsatisfactory for the same reason. Since the manufacturer had no other satisfactory means of producing a water-resistant container, no further samples were prepared.

Combination fibreboard and metal containers were being used to a considerable extent for packaging paint. Samples of these containers were obtained from four manufacturers and examined in the Laboratory. Three of these had parchment-like liners which came loose within a few minutes after being exposed to water on the inside of the containers. The body walls then became quite soft. A disagreeable odor was also present inside the containers. The remaining sample contained an inside liner of metal foil and resisted water penetration very satisfactorily for a test period extending over several weeks. All of the containers softened quite rapidly from the outside when covered with melting crushed ice, however, and could be easily crushed. Since the manufacturers were operating at peak capacity, they were not interested in making any changes in the construc-

tion of the containers, and consequently no further tests were made.

One of the large can manufacturing companies was asked to prepare samples of combination fibreboard-metal oyster containers for test purposes. The walls of the samples which were submitted were made of laminated fibreboard containing asphalt barriers to prevent moisture penetration, followed by a coating of microcrystalline wax inside the containers. The ends were of chemically-treated and lacquered blackplate. Preliminary laboratory tests showed these containers to be very resistant to water penetration. Shipping tests were made in which oysters packed in these containers were shipped in the usual commercial manner from Seattle, Wash., to College Park, Md. Although the outside walls were found upon arrival to be roughened and scuffed to some extent, the containers were still quite firm and were in a satisfactory condition in general. After further storage in ice in the Laboratory for 11 days, very little change occurred in the condition of the containers and softening of the fibreboard walls was negligible. Unfortunately, about the time these tests were being made, paperboard was becoming increasingly scarce, and the entire output of microcrystalline wax was being taken for war use. It was, therefore, impossible to begin production of these containers on a commercial scale.

Chemically-treated blackplate--Restrictions on the use of metal were eased somewhat during the winter and spring of 1942-1943 to permit the use of chemically-treated and lacquered blackplate for one gallon size friction top oyster cans. Five companies submitted samples of these cans to the College Park Laboratory for examination and test purposes. Following preliminary tests at the Laboratory, a shipment consisting of a barrel containing 19 cans of these cans filled with shucked oysters, and packed with ice in the usual commercial manner, was made from Baltimore, Md., to a fish dealer in Louisville, Ky. The cans were examined at the destination and re-shipped to the College Park Laboratory where they were stored in crushed ice for over two weeks. Slight rusting occurred on the outside of several of the cans during this storage period. The manufacturers were informed of the results of these tests and, in the case of the rusting, improvements in the lacquer coating were made. It was later learned that a particular lacquer coating selected by the Service's technologists as the best of several submitted by one company was adopted for use by this company and gave very satisfactory service. In general, chemically-treated and lacquered blackplate cans were found to be quite satisfactory for packaging and shipping fresh-shucked oysters.

The results of tests on some containers for shucked oysters are shown in Table 1.

CHILLED PICKED CRABMEAT--Because of the relative "dryness" of picked crabmeat, a suitable non-metallic container for this product is more easily produced than is one for a product having free liquid, such as shucked oysters. Since chilled picked crabmeat along the Atlantic and Gulf Coasts is generally packed in containers having several small holes in the bottom, the necessity of having watertight top and bottom crimped seams is eliminated, although tight seams are still desirable in order to lessen the penetration or "wicking" of water from melting ice into the fibreboard. Of more importance is a cover which is tight fitting and which will prevent the leakage of water into the top of the can. As is true with most containers, a crabmeat container must maintain sufficient rigidity in the presence of water to resist being crushed during shipment.

The findings reported herein apply also to containers for chilled picked lobster meat.

Fibreboard--A heavily-waxed, one pound size, all-fibreboard crabmeat container was used for a number of years, mostly for short distance shipments or as a "carry-out" package. These containers were tested in the Laboratory to ascertain their suitability for use in making distant shipments. Preliminary tests were quite satisfactory, but due to labor conditions in connection with waxing, the manufacturer abruptly discontinued production soon after these tests were made. This concern made several attempts to produce an unwaxed, cellophane-lined, fibreboard crabmeat container, and samples were submitted for test purposes. When placed in melting crushed ice, they softened rapidly and showed structural failure in general. Further changes by the company did not improve this type of container. This company continued to produce a lightly-waxed all-fibreboard crabmeat container, but it was shown by laboratory tests and in commercial shipments to be unsatisfactory for use except as a "carry-out" package.

Not long after the manufacture of the heavily-waxed containers had been stopped, another company began production of a one pound size, heavily-waxed, all-fibreboard crabmeat container. Samples were obtained, and were found to be fairly satisfactory in laboratory tests. Their principal weakness was in the failure of the adhesive to withstand the softening action of water from the melting ice, resulting in a partial unwinding of the plies, particularly in the rim of the cover. These findings were

Table 1--Data on Tests with some Containers for Fresh-Shucked Oysters

Type of Container	Size	Remarks
Heavily waxed.	Pint	Very soft, and cover unsatisfactory. Not suitable.
Lightly waxed, parchment lined.	do	Parchment detached, bad odor due to adhesive, mold growth beneath parchment, and container very soft. Not suitable.
Lightly waxed.	do	Extremely soft, easily crushed and cover unsatisfactory. Not suitable.
Lightly waxed, cellophane lined.	do	Cover and body came apart; cellophane lining came loose. Not suitable.
Lightly waxed, cellophane lined, with outer sleeve.	do	Cover and body came apart; cellophane lining came loose. Not satisfactory.
Lightly waxed, parchment lined, with outer sleeve.	do	Cover and outer sleeve came apart; parchment came loose; bad odor due to adhesive; and container soft. Not suitable.
Lightly waxed, with outer sleeve.	do	Cover and outer sleeve came apart; container very soft. Not suitable.
Heavily waxed.	do	Quite firm and reasonably satisfactory. Manufacturer discontinued production.
Lightly waxed.	Callon	Extremely soft, with top and bottom disks loose. Not suitable.
Heavily waxed.	Quart	Quite firm and fairly satisfactory. Manufacturer discontinued production.
Heavily waxed, with inner cellophane bag.	do	Bag leaked at seams, and container softened. Not suitable.
Lightly waxed.	do	Body extremely soft and cover came apart completely. Not suitable.
Lightly waxed, cellophane lined, crimped seams cemented.	Pint	Very soft; top and body came apart, and cellophane loosened. Not suitable.
Lightly waxed.	do	Extremely soft, with bad odor inside; cover and body came apart. Not suitable.
Heavily waxed, "slip-in" cover.	do	Body firm but cover soft, leaky and easily pushed in. Not suitable.
Heavily waxed, "snap-on" cover.	do	Body firm but cover soft and easily removed. Not suitable.
Heavily waxed.	$\frac{1}{2}$ gal.	Extremely soft and easily crushed. Not suitable.
Lightly waxed, cellophane covered.	Gal.	Body quite soft and cover came apart; cellophane loosened. Not suitable.
Heavily waxed.	do	Quite firm and fairly satisfactory. Manufacturer discontinued production.
Heavily waxed, 3-ply.	do	Fairly satisfactory in laboratory tests, but unsatisfactory in shipping test due to softening.
Lightly-waxed box, with inner cellophane bag.	2 gal.	Very soft and easily crushed; delaminated; bag seams opened. Not suitable.
Lightly waxed, with Bakelite coating.	Pint	Very soft and easily crushed. Not suitable.
Lightly waxed, with plastic coating.	do	Extremely soft and easily crushed. Not suitable.
Cellophane bag.	do	Quite soft and easily torn; seams opened easily. Not suitable.
Parchment bag.	do	Very soft and easily torn. Not suitable.
Double cellophane bag.	do	Seams opened easily, with leakage. Not suitable.
Double cellophane bag, heavier type.	do	Seams opened completely. Not suitable.
Cellophane-glassine bag.	do	Seams opened completely. Not suitable.
Asphalt laminated bag.	do	Quite soft and easily torn. Not suitable.
Asphalt impregnated bag.	do	Quite soft and easily torn. Not suitable.
Lightly waxed, cellophane covered, metal ends.	Quart	Cellophane loosened; body soft and easily crushed. Not suitable.
Fibreboard body laminated with asphalt, waxed inside, bonderized ends.	do	Quite satisfactory in shipping test. Scarcity of materials prevented manufacture.
Fibreboard body paint cans, bonderized ends.	Gal.	Softened rapidly and easily crushed; bad odor inside. Not suitable.
Chemically-treated blackplate, lacquered.	do	Entirely satisfactory in laboratory and shipping tests.

further borne out by examining a large number of these containers at points of destination after being shipped from the crab packing houses. By letter and through personal contact with the Chief Chemist, the weaknesses were called to the attention of the manufacturer and recommendations were made to incorporate waterproof resins in the adhesive. As a result of this cooperation, an all-fibreboard crabmeat container was developed which was reasonably satisfactory, and which was used to a considerable extent by the industry.

Two shipping tests were made with these containers under conditions similar to those encountered in commercial practice. One shipment was made from Biloxi, Miss., and the other from New Orleans, La., both being sent to the College Park Laboratory. The containers were found to be in good condition upon arrival at the Laboratory and remained so during subsequent storage tests in crushed ice.

A rectangular-shaped one pound size, fibreboard box was submitted by one company for use as a crabmeat container. Preliminary tests showed it to be too easily crushed in ice and to afford too little protection to the contents against possible contamination. No further tests were made with this container.

Bags--Bags similar to those tested for packaging fresh-shucked oysters were tested with crabmeat. The difficulties encountered were almost identical with those found for oysters and further tests were discontinued.

Chemically-treated blackplate--Chemically-treated blackplate was permitted to be used to a limited extent in the manufacture of crabmeat cans early in 1944. Consequently, samples of these cans were obtained for test purposes from the three principal producers in the East. Preliminary laboratory tests, as well as practical shipping tests, showed chemically-treated and lacquered blackplate to be generally satisfactory for use in the fabrication of crabmeat cans. Samples produced by one company had certain weaknesses in the lacquer coating in some instances. This fault was brought to the attention of the manufacturer.

The results of tests on some containers for crabmeat are shown in Table 2.

Table 2--Data on Tests with some Containers for Chilled Cooked Crabmeat and Shrimp

Type of Container	Size	Remarks
CRABMEAT		
Heavily waxed.	Pound	Quite firm and reasonably satisfactory. Manufacturer discontinued production.
Lightly waxed, outside cellophane covered.	do	Quite soft and crimped seams opened; cellophane loosened. Not suitable.
Lightly waxed, cellophane covered, inside and outside.	do	Quite soft; top and body fell apart; cellophane loosened. Not suitable.
Lightly waxed.	do	Extremely soft and easily crushed. Not suitable.
Heavily-waxed box.	do	Too lightly constructed and easily crushed. Not suitable.
Bags of various types.		Same as given in Table 1.
Heavily waxed, old type.	do	Top and bottom crimped seams opened slightly; top rim unwound; maintained rigidity. Fairly satisfactory.
Heavily waxed, improved type.	do	Maintained rigidity. Reasonably satisfactory in laboratory and shipping tests.
Chemically-treated blackplate, lacquered.	do	Satisfactory in laboratory and shipping tests.
SHRIMP		
Heavily waxed.	5 pound	Too lightly constructed and easily crushed. Not suitable.
Heavily waxed.	do	Maintained rigidity. Reasonably satisfactory in laboratory and shipping tests.
Heavily-waxed box, full telescopic cover.	do	Softened considerably in laboratory tests; fairly satisfactory in shipping test.
Chemically-treated blackplate, lacquered.	do	Satisfactory in laboratory and shipping tests.

CHILLED COOKED SHRIMP--Chilled fresh-cooked shrimp is also a fairly "dry" product and presents no serious difficulties insofar as packaging for shipment is concerned. The package should be watertight to the extent of preventing the entrance of water from melting ice and should have a cover which will remain in place under conditions of rough handling. The package must be con-

structed so as to resist softening in the presence of water from melting ice and should have sufficient crushing strength to withstand the weight of ice and other packages during shipments.

Fibreboard--Two types of 5-pound size fibreboard packages were found to be reasonably satisfactory for packaging and shipping cooked shrimp. The more heavily-constructed spirally-wound type of container which was previously referred to in connection with oyster containers resisted softening quite well when packed in crushed ice. The other type of fibreboard container, which was made specifically for cooked shrimp, was a heavily-waxed rectangular box provided with a waxed auxiliary, full telescopic cover to prevent water from entering the top of the box. This container softened considerably during laboratory tests.

Shipping tests were conducted with both types of containers from New Orleans, La., to the College Park Laboratory. The spirally-wound container remained firm, while the rectangular container softened somewhat. A number of both types of containers used in commercial shipments from the packing houses to seafood dealers were examined and were found to arrive at their destinations in a reasonably satisfactory condition.

Chemically-treated blackplate--Following the easing of restrictions on the use of chemically-treated blackplate for seafood containers, tests were conducted to determine the suitability of this material for packaging chilled cooked shrimp. Storage tests conducted with shrimp in these containers showed no deterioration of the lacquer or the metal; likewise, the results of a shipping test made from New Orleans to the College Park Laboratory, and subsequent storage in ice, indicated that these cans were satisfactory for packaging and shipping chilled cooked shrimp.

The results of tests on some containers for shrimp are shown in Table 2.

FRESH FISH FILLETS--Due in part to the use of fibreboard containers by the frozen and fresh fillet industry prior to the war, the development of a reasonably suitable non-metallic container for shipping fresh fillets was hastened to a considerable degree. As is true with containers previously mentioned, a fillet container must be provided with a cover to prevent the entrance of water from melting ice, and should be constructed of water-resistant material sufficiently rigid to withstand crushing during shipment. The latter requirement is important since the top and bottom surfaces of these boxes are comparatively large in area and, hence, may be subjected to a considerable crushing force at times.

Fibreboard--At the beginning of the war, at least three companies were manufacturing fibreboard boxes which were reasonably satisfactory for packaging and shipping fresh fillets. Two of these concerns, however, were forced to discontinue production of these boxes due to labor shortages, and difficulty in obtaining fibreboard. The remaining producer of any size manufactured a heavily-waxed fibreboard box of the full telescopic type. These boxes were shipped flat and required special stapling machines for assembly. This drawback was overcome in the New England area (the principal user of the boxes) by having the boxes assembled at a central point by a distributor. These boxes were shipped to dealers as far south as Virginia.

Certain difficulties were at first encountered in the use of this heavily-waxed box due to extreme softening of the fibreboard and separation of plies caused by failure of the adhesive when exposed to melting ice during shipment. By letter and through personal contact with the Chief Chemist and Technical Consultant of the manufacturing company, suggestions were made for improving the water-resistant properties of the fibreboard by the incorporation of waterproof resins in the adhesive. It was thought this not only would retard softening of the board but would inhibit separation of the plies. Certain of these suggestions were followed which resulted in the production of an improved box. Large quantities of these fibreboard containers have been used successfully, except under very adverse conditions, for shipping fresh fillets. The boxes soften somewhat in warmer weather, due to increased melting of the ice, and greater care in handling is required at that time. These containers were made in 10-, 15-, 20-, and 30-pound sizes.

As a result of contacting a large number of fibreboard box manufacturers, samples of several prospective fillet boxes were submitted for test purposes. Most of these were found in preliminary laboratory tests to be unsatisfactory due to extreme softening when held in contact with water. Those which appeared to be satisfactory in laboratory tests were subjected to shipping tests, under conditions encountered commercially, from Gloucester, Mass., to the College Park Laboratory. The boxes which withstood this shipment most successfully were those constructed of the so-called V-board which was developed for use in overseas shipments. Since this type of fibreboard was under strict allocation, however, its use in the fabrication of fillet boxes was not permitted.

Chemically-treated blackplate--At the time of this investigation, it was possible to obtain only one brand of chemically-treated blackplate fillet container for test purposes. Laboratory tests and a shipping test from Gloucester, Mass., to College Park, Md., made with groundfish and rosefish fillets, showed these containers to be satisfactory for this purpose.

The results of tests on some containers for fish fillets are shown in Table 3.

Table 3--Data on Tests with some Containers for Fresh Fish Fillets

Type of Container	Size	Remarks
Bleached fibreboard, heavily waxed.	10 lbs.	Softened slightly. Reasonably satisfactory. Manufacturer discontinued production.
Solid kraft, lightly waxed.	do	Softened considerably and easily crushed. Not suitable.
Virgin pulp, heavily waxed.	20 lbs.	Softened slightly. Reasonably satisfactory. Manufacturer discontinued production.
Laminated chipboard and kraft, waxed, old type.	do	Softened considerably and crushed easily; delaminated. Unsatisfactory.
Laminated chipboard and kraft, waxed, improved type.	do	Softened slightly. Reasonably satisfactory in laboratory and shipping tests.
V2S board, asphalt barriers, unwaxed.	do	Quite rigid but dirty appearance due to asphalt barriers. Reasonably satisfactory in shipping tests.
V3S board, waxed.	do	Fairly rigid. Reasonably satisfactory.
V3S board, not waxed.	do	Slightly soft on top and bottom but sides rigid. Reasonably satisfactory in laboratory and shipping tests.
V3C board, not waxed.	do	Quite rigid. Reasonably satisfactory.
Lacquered fibreboard.	do	Softened considerably; strong odor from lacquer. Not suitable.
Impregnated fibreboard, not waxed.	do	Quite soft and easily crushed. Not suitable.
Chemically-treated blackplate, lacquered.	do	Satisfactory in laboratory and shipping tests.

MISCELLANEOUS MATERIALS--In addition to the search for suitable seafood containers already in production, an effort was made to find materials having special properties which might be adaptable for use in the fabrication of these containers. Among the materials investigated or tested were certain plastics, plastic coatings, wood products, specially-coated papers, and newly-developed adhesives.

Considerable effort was made to investigate the possibility of using plastics in sheet form in the fabrication of cylindrical, or rectangular-shaped containers. Several plastic materials in this form were examined in the Laboratory and were found to have certain undesirable properties such as a strong odor when wet, extreme brittleness, resistance to being bent into shape, and failure to maintain the desired position after being bent. Special adhesives would be required with these materials. Some of the materials required rather expensive heating or molding equipment to pre-form the sheets into the proper shape for use in making a container. Other materials were far too expensive or were under strict allocation.

One material which showed some promise for use in making spirally-wound containers was a paper base plastic, in sheet form, having high resistance to water penetration. Through an arrangement made by technologists of the Service, the manufacturer supplied a quantity of this material, together with technical advice, to a concern which made spirally-wound containers. The latter firm agreed to conduct tests on the possibility of using the material in container fabrication. As a result of numerous attempts, however, it was found impractical to use the material in high speed production due principally to difficulties caused by lack of proper adhesives.

Similar arrangements were made by technologists of the Service between this container manufacturer and two other concerns which manufactured plastic impregnated paperboard. The tests were unsuccessful, however, due to technical difficulties encountered in winding the containers.

A plastic material in liquid form, which possibly might impart water-resistant properties and rigidity to fibreboard by being added to paper pulp prior to being spread into sheet form before drying, was sent to a large paper manufacturing company for test purposes. Although the tests appeared promising, certain difficulties were encountered which could not be readily overcome; hence, no further work was done with this material.

Several types of plastic coatings in liquid form were applied to fibreboard containers in an attempt to impart rigidity and water-resistant properties to the board. These tests, however, were unsuccessful.

The possibility of using certain wood products and wood plastics was discussed with members of the U. S. Forest Products Laboratory, Madison, Wis., and with commercial producers. No practical suggestions, other than molding containers from these products, were made by these parties. Costs of raw materials and processing were found to be excessive.

Several companies were contacted in regard to the possibility of molding containers from other plastic materials. These companies would not consider expending money for developing such products without first having definite assurances that there would be a large and constant demand for the containers, since the molds would cost several thousand dollars to construct. Such assurances could not be given, and therefore, no containers of this type were obtained for test purposes. It was estimated that a molded plastic container would cost up to ten times as much as a metal one.

Samples of newly-developed plastic bottles were obtained for examination. Due, however, to the fact that they could be made only in small sizes, the largest having a capacity of about one ounce, they were not applicable for use in the seafood container field.

Several types of specially-coated or lacquered papers which were thought might be used as a water-resistant liner for fibreboard were found in laboratory tests to offer very little or no resistance to water penetration. One brand of plastic-coated paper was quite water resistant but was under strict allocation for war use only.

Considerable effort was made to keep abreast of developments in the field of adhesives. Stringent requirements for adhesives in connection with packaging for overseas shipment spurred the development of greatly improved and more water-resistant adhesives over those used prior to the war. In many instances, these products were allocated entirely to uses in connection with the war effort. Certain of the adhesives having water-resistant properties, however, were available for other uses, and were brought to the attention of the container manufacturers for use in improving their products, as mentioned previously.

Availability of Containers--Not only was the study concerned with locating or developing suitable containers but the matter of obtaining them in sufficient quantities to meet the needs of the seafood industry was also considered. The tremendous change-over which was brought about by restrictions on the use of metal containers of a great variety of shapes and sizes placed a sudden and extremely heavy burden on the glass and fibreboard container industries. Many of the products formerly packaged in metal could be placed in lightly constructed rectangular-shaped fibreboard containers which were adaptable to high speed production, and which were made by a large number of companies. Certain other products required a so-called watertight or spirally-wound type of container. In most cases, the output of the relatively small number of manufacturers of the latter type of container was quite small and in addition very few of these companies made containers which were suitable for use in packaging foods. Therefore, the demands on these companies were quite heavy.

Close contact by letter and in person was maintained with manufacturers of containers of various types. As a result, limited sources of supply of containers which might be used for packaging and shipping several varieties of fresh-chilled seafood were found.

The availability of satisfactory heavily-waxed, spirally-wound fibreboard containers for seafood was definitely limited since the supply depended largely upon the output of one company. This company produces containers of various sizes and types, and because of their adaptability for use in the packaging of a large variety of foods, the demand greatly exceeded the production capacity of existing equipment. The company made an effort to spread the supply of containers over as large a portion of the food industry as possible, and consequently found it necessary to allocate limited quantities to each of the various components of the industry. Accordingly, a total of about 2,000,000 heavily-waxed pint size containers and one pound size crabmeat containers per month were allocated to the fishing industry. Following the installation of new machinery, it was expected to increase this quantity to 3,000,000 at a later time. Only about 400,000-gallon size containers per month were available. Crabmeat containers were produced only at intervals which were determined by the accumulation of sufficient orders to warrant production. Orders which were on hand for containers of the type used for oysters and cooked shrimp generally filled the production schedules for at least four months ahead. It was, therefore, necessary for customers to anticipate their requirements four or five months in advance, in order to be sure of having on hand a sufficient quantity of containers to meet their needs.

The fresh fillet industry in the principal producing area had available approximately 12,000 waxed fibreboard boxes per day. This usually took care of the demand without any difficulty, although there were occasional short periods during which the demand exceeded

the daily production. The distributor usually met this situation by drawing from a reserve stock of boxes, or in extreme cases, by increasing the daily output when possible. Boxes were also sent to other localities when the occasion demanded.

The use of metal was not, as a rule, entirely prohibited. A considerable degree of flexibility in the use of metal and fibreboard containers was therefore possible. Sufficient metal containers were usually available which, if the packers desired, might be used for distant or hot weather shipments, while fibreboard containers could be used for shipments made to nearby points or in cooler weather. In general, sufficient containers of one type or another were available for packaging and shipping fresh seafood if the packers made a reasonable effort to anticipate their requirements, and place orders well in advance, and to alternate between the use of metal and fibreboard containers whenever possible.

The industry was informed of this situation from time to time in daily Market News reports and in Fishery Market News.

When the use of chemically-treated blackplate was permitted, an immediate survey was made of the principal can-producing companies in the East to determine the availability of this material as well as containers made from it. Most of the companies reported ample supplies of the material in stock, with facilities for easily handling the demands which were expected.

SECTION 2. KEEPING QUALITIES, ICING REQUIREMENTS, AND CHANGE IN WEIGHT OF SEAFOODS IN CONTAINERS

Although reasonably satisfactory fibreboard containers were developed and used for several varieties of fresh seafood, some question arose in regard to the keeping quality of some of these products packed in these containers. During surveys made of dealers in connection with the suitability of these containers, the complaint was sometimes heard that spoilage of certain products, such as crabmeat, cooked shrimp, and fish fillets, occurred more rapidly in fibreboard containers than in those made from metal. On the other hand, many of the dealers reported that their products kept equally well in either type of container.

Because of this lack of agreement among the seafood handlers, several series of tests were conducted to determine whether the storage life of properly refrigerated products is affected by being packed in fibreboard containers. Studies were made with East Coast crabmeat, West Coast crabmeat, fish fillets, and cooked shrimp. The results are summarized under the headings which follow.

KEEPING QUALITY OF EAST COAST CRABMEAT--In one series of studies with East Coast crabmeat, the freshly-picked product was placed in several types of fibreboard containers and metal crabmeat cans. They were then held in crushed ice until the meat was considered to be no longer in a fresh condition. In another series, a shipment of fresh crabmeat packed in fibreboard containers and metal cans was made from a packing house in Biloxi, Miss., to the College Park Laboratory. Upon arrival, the meat was found to be in good condition in all of the cans. These cans were held in crushed ice until the meat was no longer fresh.

The results of these shipping and storage tests indicated no appreciable difference in the keeping quality of crabmeat packed in heavily-waxed fibreboard containers and in metal crabmeat cans, both of the type with holes in the bottom as commonly used on the East and Gulf Coasts. The meat spoiled somewhat sooner in lightly-waxed fibreboard containers than in the other types. This latter condition was not considered to have any bearing on the problem, however, since the lightly-waxed containers soften rapidly when packed in ice and consequently would in all probability be used only as "carry-out" packages and not for shipments or lengthy storage. The details of this study are given in "Keeping Quality of East Coast Crabmeat in Fibre Containers and in Tin Cans," by S. R. Pottinger (Fishery Market News, August 1943, pp. 10-12).

ICING OF EAST COAST CRABMEAT--Another series of studies were made to determine the rate of cooling, and the temperature of fresh-cooked East Coast crabmeat packed in metal and in heavily-waxed fibreboard crabmeat cans, and held under varying conditions of icing. Crabmeat, at an initial temperature of about 85° F., packed in containers that were entirely covered with ample quantities of crushed ice, was found to reach a temperature of about 36° F. at the end of three hours, and about 33° F. after five hours. Practically no difference was found in the rate of cooling of the meat in the two types of containers. In a

second series of tests, the cans were packed in crushed ice so as to have only one-half of the total surface of each can covered, leaving the other half exposed to air temperature. Starting with crabmeat at a temperature of about 85° F., the temperature had decreased to only 46° F. for the un-iced portion of the metal can and 51° F. for the corresponding part of the fibreboard container. The portions which were covered with ice had a temperature of 38° and 42° F., respectively. A slower rate of cooling was apparent in the fibreboard containers when improperly iced, and the temperature in both types of cans was too high for safekeeping of the meat.

Tests were also conducted under conditions of icing sometimes encountered in commercial shipments. Warm crabmeat, at an initial temperature of about 85° F., was packed in metal and in fibreboard cans, and placed in a shipping container. Crushed ice was placed over the top layer of cans, and the container was shaken in order to distribute the ice around the cans. This was repeated until the shipping container was filled. At the end of six hours, the average temperature of the meat in the metal cans was 41° F. and in the fibreboard cans, 47° F. The results obtained in these experiments indicate that the rate of cooling and the temperature at which crabmeat in the two types of containers is maintained is affected by the method of icing the containers. The experiments are given in more detail in "Studies on the Icing of Fresh-cooked East Coast Crabmeat," by S. R. Pottinger (Fishery Market News, August 1943, pp. 23-25).

KEEPING QUALITY OF WEST COAST CRABMEAT--On the West Coast, the shipping and holding of fresh dungeness crabmeat has always been a problem, even with an ample supply of tin cans. The problem became more acute with the use of substitute containers. Several theories have been advanced in regard to the cause of the rapid decrease in keeping quality of the meat packed in fibreboard containers, namely:

- (1) Delayed cooling of the product due to greater insulation of the fibreboard.
- (2) Off odors imparted to the product by the containers themselves.
- (3) Acceleration of bacterial and chemical changes due to entrance of air through the container material.

Studies were made on this basis in an effort to establish the cause for the more rapid spoilage of crabmeat in substitute containers and to overcome this difficulty. Fresh crabmeat was obtained directly from the picking tables of a crab plant, packed in various types of fibreboard containers and in tin cans, and placed in ice. Spoilage was found to be least in tin and in the two heavily-waxed types and much greater in the lightly-waxed type. The permeability to oxygen (about 3 times greater in the lightly-waxed type than in the heavily-waxed containers) suggests that differences in spoilage rate might be due to permeability of the different containers to gases. Parchment paper liners in the containers afforded no protection against spoilage. Other tests were conducted in ample quantities of air, in reduced exposure to air, and also in almost total absence of air, all samples being held in ice. Spoilage in the absence of air required eight days as compared to four days in the presence of such air, while that stored with a limited amount of air had intermediate keeping quality. The evidence indicates that differences in the spoilage of dungeness crabmeat in various types of containers is due to the presence or absence of air. Precooling before packaging is recommended. The details of the studies are given in "Effect of Packaging Methods on Spoilage of Crabmeat," by C. F. Shockley, M. E. Stansby, and R. P. Elliott (Fishery Market News, August 1943, pp. 18-23).

ICING OF COOKED SHRIMP--Problems similar to those encountered with crabmeat were at times reported by dealers regarding fresh-cooked shrimp. Studies were conducted at the College Park Laboratory to determine the rates of cooling of shrimp packed in the three types of 5-pound size containers in general use. These were:

- Cylindrically-shaped, chemically-treated blackplate cans
- Cylindrically-shaped, wax-coated fibreboard containers
- Rectangular-shaped, wax-coated fibreboard boxes

Five pounds of cooked and peeled shrimp were placed in each of the three types of containers and iced under varying conditions.

The material from which the containers were made had no marked effect on the rate of cooling of the shrimp provided the containers were covered thoroughly with ice. When they were only partly covered with ice, however, the rate of cooling was considerably slower in the fibreboard containers than in metal. A proper storage temperature, irrespective of the type of container, was reached much more rapidly by quickly pre-chilling the shrimp to 50° F. before packaging, followed by immediate, thorough icing of the package. Improper icing will nullify the effect of pre-chilling. The details of these studies are given in "Studies on the Icing of Fresh-cooked and Peeled Shrimp," by E. F. Kapalka and S. R. Pottinger (Fishery Market News, November 1944, pp. 4-6).

CHANGE IN WEIGHT OF CRABMEAT AND SHRIMP--The increased use of fibreboard containers for shipping fresh-cooked crabmeat and shrimp, prompted the question as to changes in weight of contents due to loss or gain of moisture through the walls of the package. Previously weighed one and five-pound size chemically-treated blackplate cans, and heavily-waxed fibreboard containers for crabmeat and shrimp, and 5-pound size rectangular-shaped waxed fibreboard shrimp boxes were packed with the respective products at a plant in the vicinity of New Orleans, weighed and shipped in the usual manner to the College Park Laboratory. Weights were taken upon arrival, and at intervals during the period of storage in crushed ice in the Laboratory. During storage, the change in the average gross weight of all of the crabmeat packages, average net weight of the crabmeat, and of the containers themselves was negligible. When based on the weight at the time of packing, however, there was a decrease in the net weight (contents) of all of the packages. The weight of the empty fibreboard containers increased slightly. Apparently, the most rapid change in the weight of the containers and the crabmeat occurs soon after packaging or during shipment.

With shrimp, the over-all change, during storage, in the gross weight of all of the shrimp packages was negligible. This was also true of the contents of the cylindrical containers and the containers themselves. The net weight of the shrimp packed in the rectangular box decreased slightly during storage, while the box itself increased in weight. No apparent loss occurred in the weight of the contents of the two types of cylindrical containers between the time of packing at the plant and arrival at College Park. The contents of the rectangular box decreased about one ounce in weight during this time, however.

No difference was apparent in the keeping quality of the crabmeat in the two types of containers nor of the shrimp in the three types of containers.

KEEPING QUALITY OF FRESH FISH FILLETS--In conjunction with a shipping test made to determine the suitability of several types of fibreboard and chemically-treated blackplate fillet boxes, the effect of these containers on the keeping quality and flavor of the fillets was studied. The boxes were filled with fresh cod fillets and shipped, packed in crushed ice in the usual manner, from Gloucester, Mass., to the College Park Laboratory. One metal and two fibreboard boxes containing the fillets were placed in crushed ice in the Laboratory and held until spoilage occurred. The keeping quality was the same in all of the boxes and no appreciable difference was noted in the condition of the fish. Cooking tests, conducted with the fillets while still fresh, revealed only a natural fish flavor for all samples.

More details of this study are given in a separate report which was submitted after the completion of the tests.

SECTION 3. USE OF DRY ICE IN THE SHIPPING OF FRESH FILLETS

Various attempts have been made from time to time to use dry ice as a refrigerant in shipping fresh seafood. This method of refrigeration has not been entirely successful, however, due to difficulties in maintaining a proper temperature within the shipping container. A further study of the use of dry ice in seafood shipments was thought advisable because of the restrictions placed on the use of metal in the fabrication of containers and the uncertainty of obtaining fibreboard containers capable of withstanding shipment in crushed ice. There should also be an advantage of having a dry and compact package.

In this connection, a company which manufactures insulating pads and a large container manufacturing company were interested in conducting shipping tests of this nature and requested that a representative of this Service be present to observe a method of packaging fresh crabmeat, with dry ice, developed jointly by the two concerns. Shipments were made from crabmeat packing houses in Crisfield, Md., and Hampton, Va., in September 1942. The shipping container, made of corrugated fibreboard, was designed to hold 48 one pound size waxed paper containers of crabmeat, dry ice, and insulating pads to maintain a proper temperature within the package. The details regarding the tests were given in a separate report and will not be repeated here except to state that the tests were unsuccessful due to deviations in temperature within the containers, resulting in freezing of the meat in certain parts of the box, while an excessively high temperature prevailed in other parts. As a result of these preliminary tests, however, the possibility of developing a more successful unit along these same lines was apparent, which led to further investigations with the use of dry ice as a refrigerant in the shipment of fresh fish fillets. Through an agreement between the two companies involved and this Service, a large number of experiments were conducted at the College Park Laboratory towards the development of a compact unit, requiring no metal, for shipping fresh fillets.

A unit holding two 20-pound boxes of fillets was tentatively decided upon as being the most satisfactory from the standpoint of trade practice as well as ease of handling.

The first series of experiments was planned to determine the proper sizes of container and fillet boxes, the required amount of insulation to provide satisfactory temperature control, and the arrangement of dry ice in the unit for most effective cooling. After these phases of the problem were worked out, further tests were made to determine the quantity of dry ice necessary to properly refrigerate the contents for different periods of time at various outside temperatures.

The details regarding this work and the description of the shipping unit as finally developed are given in an article entitled "Dry Ice Refrigeration of Fresh Fish Fillets," by E. F. Kapalka and R. H. Flowers (*Fishery Market News*, August 1943, pp. 7-10). A modification of this dry ice unit has been used on a semi-commercial scale by a large fish producing concern in Boston, and it is reported that a large number of successful commercial shipments have been made with it.

SECTION 4. THE SUPPLY OF SHIPPING CONTAINERS

During the latter part of 1943, shippers of fishery products in certain areas were reported to be experiencing some difficulty in obtaining wooden boxes and barrels, particularly in those sections along the coast in which shipments are almost entirely outgoing. In such cases, very few used containers are available and consequently new ones must be obtained for practically all shipments. The demand for new boxes and barrels for shipments going to the Armed Forces was reported to be so great that practically the entire output of some of the larger container manufacturers was, at times, taken for these shipments. Furthermore, the situation was complicated by a shortage of manpower not only in the box plants but for cutting timber and sawing it into the proper sizes and shapes for use in the fabrication of boxes and barrels.

To determine the extent of these shortages and steps to be taken in overcoming them, periodic surveys of the situation were made, beginning early in 1944 with a trip to Boston, Gloucester, and New Bedford, Massachusetts. Ten manufacturers of wooden boxes and barrels were contacted in these localities. Nine of these reported that they were able to meet the demands of the fishing industry for shipping containers, although large Government orders also were to be filled. Only one company reported its entire production going to the Government. The supply in Portland, Maine, was reported to be sufficient to meet the demands of the fish packers in that area.

A similar survey was made of twelve seafood dealers and box manufacturers in Hampton and Norfolk, Va. The fish, oyster, and crabmeat packers in Hampton reported that they were able to obtain an ample supply of boxes and barrels. Practically all of the available barrels were new. A large proportion of the boxes were new also but re-use of boxes was practiced wherever practicable. The principal box manufacturer in the Hampton area had a large supply of new containers on hand and was obtaining shooks and lumber from sawmills in Virginia and North Carolina with very little difficulty. The most important problem was that of manpower, and although the shortage was not acute, the type of labor obtainable was reported to be very unsatisfactory.

The box and barrel situation in Norfolk was, in general, similar to that in Hampton. One of the large producers of oysters and fish was having no difficulty in obtaining new shipping containers from manufacturers in the Norfolk area and on the Eastern Shore of Virginia. Several other seafood producers reported they were able to obtain an ample supply of containers. A large box manufacturing concern in the Norfolk area reported that all orders for fish boxes were being met but that the manpower problem was acute. Women were doing much of the work and consequently the output had been retarded to some extent. In general, no shortage of shipping containers for seafood was evident in the Hampton and Norfolk area.

A survey of seafood handlers and box and barrel dealers in Baltimore, Md., showed no apparent shortage of shipping containers, as much of the seafood is received in this city in boxes and barrels and the same containers are then used for re-shipment when possible. The container manufacturers and dealers were generally able to meet the additional needs of the seafood dealers, although large orders for barrels sometimes had to be filled by supplying a few barrels at a time.

A thorough survey was made of the shipping container situation in Pittsburgh, Pa., Columbus, Cleveland, and Sandusky, Ohio, Buffalo, N. Y., and Philadelphia, Pa. A total of 62 fish dealers and brokers and wooden box and barrel manufacturers and handlers was contacted. In the Pittsburgh area boxes and barrels were found to be re-used to a considerable extent, and a number of the dealers were making an effort to return as many as possible of the empty 100-pound size boxes to the Lake Erie fish-producing centers. Adequate storage facilities were lacking, and unless boxes were picked up at frequent intervals by the box dealers, they were thrown away or burned. It was claimed that boxes and barrels cannot be re-used more than two times because they become too dirty and foul smelling. Dealers in second-hand boxes had a limited supply of assorted boxes.

Retailers and wholesalers in Columbus, Ohio, have very little storage space and are very indifferent to saving boxes because they feel it is too costly for the resale price that they can get. No shortage of containers was evident. Boxes were re-used to a great extent by the wholesalers and producers who picked up as many used boxes as possible for repair and storage. Barrels that were not re-used were sold to second-hand dealers. All of the wholesale fish dealers reported that a large supply of used boxes was available.

In Sandusky, Ohio, all of the producers were taking steps to maintain supplies of wooden boxes for their needs. Boxes were being repaired and rebuilt; re-use for a third or fourth time was not considered advisable, however, due to the foul odor of the boxes. The producers had a fairly good supply of new boxes on hand.

The fish dealers in Buffalo did not appear to make any serious attempt to save wooden boxes or barrels. Some refused to buy fishery products in second-hand boxes due to a local law regarding the use of such boxes. Many boxes were therefore thrown away or destroyed. No new boxes or barrels were readily available in Buffalo. Used boxes and barrels appeared to be available in ample quantities.

In New York City, no great lack of boxes was reported. Since most of the boxes stay within the New York market area, they are re-used to a great extent. This is also true of the Philadelphia market. Excess boxes are generally sold to a collector near the Dock Street market. No lack of barrels for shipping seafood was reported in Philadelphia.

The box and barrel situation was discussed with members of the Containers Division of the WPB. Very little concern was shown by it over the reported shortage of containers for use in shipping seafood as it was felt that the condition was temporary, if it existed at all, and that it would be relieved rapidly with the coming of warmer weather when timber cutting would increase. In regard to the possible salvage of boxes and barrels, it was thought that certain problems in connection with their collection and shipment to the fish dealers would be a deterrent factor. Not only must there be a definite and constant demand but transportation difficulties in shipping such a bulky product must be considered as well as the final cost to the dealers for containers of questionable suitability. Unless the shortage should become very critical, such a procedure was thought to be impractical.

The possibility of obtaining salvaged boxes and barrels from Army and Navy camps and installations was considered. Several of the Army Service Commands and Naval stations or depots were contacted, and the necessary procedure for procuring surplus property, such as containers, was obtained. The procedure consisted, in short, of informing the Salvage Officer or Supply Office of the particular types of containers that were needed. A special effort would then be made to have them handled more carefully and salvaged. When accumulations of these items so warranted, they were generally offered for sale on Invitation for Bid. The various Army headquarters and Naval activities expressed a willingness to entertain proposals as to the feasibility of negotiating a contract. Full particulars as to the procedure were given in the daily Market News reports.

In general, the shortage of boxes and barrels for use in shipping fishery products was a local problem occurring at irregular intervals, if at all. No acute shortage was known to occur, and it was usually possible for the seafood shippers to obtain suitable containers if an effort was made to do so.

Separate reports, giving in more detail the results of these surveys and conferences, were submitted at the time the contacts were made.

PUBLICATIONS

- "Availability of Fiber Containers for Shipping Fresh Seafood," Fishery Market News, July 1943, pp. 11-13
- "Current Availability of Fiber Containers for Shipping Fresh Seafood," daily Market News Reports, on August 9, 1943
- "Dry Ice Refrigeration of Fresh Fish Fillets," by E. F. Kapalka and R. H. Flowers, Fishery Market News, August 1943, pp. 7-10
- "Keeping Quality of East Coast Crabmeat in Fibre Containers and in Tin Cans," by S. R. Pottinger, Fishery Market News, August 1943, pp. 10-12
- "The Suitability of Non-tin Containers for Shipping Fresh Seafoods," by J. M. Lemon and S. R. Pottinger, Fishery Market News, August 1943, pp. 16-18
- "Effect of Packaging Methods on Spoilage of Crabmeat," by C. F. Shockey, M. E. Stansby, and R. P. Elliott, Fishery Market News, August 1943, pp. 18-23
- "Studies on the Icing of Fresh-cooked East Coast Crabmeat," by S. R. Pottinger, Fishery Market News, August 1943, pp. 23-25
- "Current Availability of Fiber Containers for Shipping Fresh Seafood Discussed," Fishery Market News, September 1943, pp. 8-9
- "Sale of Boxes and Barrels by Naval Activities," daily Market News Reports, on March 15, 1944
- "Sale of Boxes and Barrels by Army Installations," daily Market News Reports, on March 21, 1944
- "Studies on the Icing of Fresh-cooked and Peeled Shrimp," by E. F. Kapalka and S. R. Pottinger, Fishery Market News, November 1944, pp. 4-6

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GENERAL HALIBUT ALLOCATION UNDERTAKEN BY OCF

An order providing for the allocation among dealers of all Pacific halibut landed at Pacific coast ports of the United States and Alaska was announced on May 11 by Secretary of the Interior Harold L. Ickes. The order became effective immediately, and will be administered by the Office of the Coordinator of Fisheries.

Allocation of Pacific halibut was first undertaken by the Coordinator's Office in 1944, when it became apparent that the selling of halibut by auction or competitive bidding was no longer feasible under price control.

The present order constitutes an amendment of the 1944 allocation order, several changes being made to afford better administration, more effectively prevent black market dealings, and secure better distribution of halibut to consuming centers.

The major changes provided in the order announced by Secretary Ickes concern the method of allocation of halibut landings among dealers on the Pacific coast and the conditioning of permits to insure normal distribution to inland markets.

Last year, landings of halibut were allocated among dealers in each port according to the percentage of the total landings at that port handled by each dealer in a previous period, selected as the base. The order as now amended provides for allocation to each dealer in accordance with his respective shares, during the base years, in the entire halibut business of the whole coast, regardless of where the fish are landed.

This system of allocation on an over-all basis was recommended by the industry and is expected to result in more normal distribution to consuming centers, and to protect dealers from the effects of shifts of landings from port to port.

As an additional aid to securing equitable distribution of halibut to inland markets, conditions or limitations may be attached to permits which will encourage normal distribution through the usual trade outlets, and will also aid in satisfying Army demands for halibut. Last year, many inland dealers complained that they were unable to get their normal supplies of halibut because the coastal dealers sought new customers wherever the change was advantageous. The amendment authorizing conditioning of permits is aimed toward correction of this condition.

Other minor changes have been made in the original order in the interest of clarity and better administration.

As in 1944, no person or firm may purchase halibut from fishermen or their agents without a permit issued by the Office of the Coordinator of Fisheries in Seattle. Any person who operated as a halibut dealer in 1941, 1942, or 1943 prior to July 13, or who had a permit to operate in 1944, will be issued a permit on request. Denial of a permit for cause is subject to appeal. Persons who desire to enter the halibut business will be issued permits unless the Coordinator's Office believes that such issuance "would be contrary to any of the provisions of this order or would interfere with the purposes of this order," but the shares allocated to dealers new to the business will be limited.

Although violation of the order will carry stringent penalties under the Second War Powers Act, ample provision is made for appeals and petitions for relief by any person who finds that compliance with the order imposes an unreasonable burden upon him.

The text of the 1945 order follows:

§ 401.4 Allocation of halibut—(a) *Jurisdiction.* Control over the delivery and allocation of halibut landings for the purposes of this section, hereafter referred to as the "order," is hereby vested in the Fishery Coordinator, and subject to his supervision and direction shall be administered by the Office of Fishery Coordination.

(b) *Statement of policy.* The purposes of this order are: to secure and facilitate the maximum production of halibut with a minimum expenditure of critical materials and manpower; to allocate halibut landings between dealers so as to aid in the most efficient distribution of the processed product to meet war and essential civilian needs, so that the armed services will secure an adequate supply of the product for their requirements, and so that the several civilian markets will be supplied with substantially normal proportions of the product, to satisfy, as near as may be, the demand which was developed largely during prewar years; and to discourage violation of maximum price regulations in transactions between fishermen and dealers. This order is to be administered so as to cause a minimum of interference with normal economic processes in the industry. Orderly production and marketing of the products of the fishery depend upon the equitable allocation of the catch among primary dealers, but all persons affected by this order are expected to cooperate in supplying the requirements of the armed services and by furthering the distribution of halibut available for civilian use to the principal distributing and consuming centers in substantially the normal percentages of supply.

(c) *Definitions.* Except where the context clearly indicates otherwise, the following definitions shall be applicable in the interpretation of this order and of all directions, regulations, permits, and other administrative statements and instruments issued under this order.

(1) "Person" means any individual, partnership, association, corporation, or other business entity.

(2) "Dealer" means any person who, within 50 miles of the coastal or inland waters of Alaska, Washington, Oregon or California, buys or takes delivery of, or arranges to buy or take delivery of, halibut from a fisherman or his agent or from a fishing vessel for resale. For the purpose of this definition it is immaterial whether the purchase, delivery or arrangements are for his own account or are for the account of another person.

(3) "Halibut" means Pacific halibut, and all other fish caught with gear of the type commonly used in the Pacific Coast halibut fishery, including cod, rockfishes, and sablefish.

(4) "Pacific halibut" means the species commonly known on the Pacific Coast as halibut, *Hippoglossus hippoglossus*, excluding the other species referred to in subparagraph (3) of this paragraph.

(5) "Allocation" means the dividing of halibut landings between the dealers according to quantities determined by the Fishery Coordinator, or his representative, usually after recommendations by an industry committee.

(6) "Representative of the Fishery Coordinator" means any person or persons duly designated to represent him in performing any of the delegable functions authorized by this order.

(7) Except when the context clearly indicates otherwise each term and phrase has the same meaning as is given to it in War Food Order No. 52 (8 F.R. 1777, 3280, formerly known as Food Directive No. 2).

(d) *Limitations on sales and deliveries of halibut.* No fisherman acting for himself or through an agent shall sell or deliver or arrange to sell or deliver halibut except to a dealer who is the holder of a valid, unexpired, and unrevoked permit issued pursuant to this order by the Fishery Coordinator or his representative.

(e) *Permits required for dealers.* No person shall operate as a dealer except in accordance with the terms and conditions of a valid, unexpired, and unrevoked permit issued to him pursuant to this order by the Fishery Coordinator or

his representative. Dealers shall exhibit their permits to all fishermen and all agents of fishermen from whom they buy or accept delivery of halibut.

(f) *Permits; terms and conditions.* (1) Each permit shall authorize operation at one port only, and shall be limited in time as deemed advisable by the Area Coordinator. Each permit shall, except as expressly provided otherwise therein, allow the purchase of all the species referred to as halibut in paragraph (c) (3) of this order; but it shall limit purchases in accordance with any allocation schedules set up under paragraph (1). Permits shall be subject to such other terms and conditions both before and after issuance as are deemed by the Fishery Coordinator or the Deputy Fishery Coordinator appropriate to furthering the purposes of this order. The War Food Administrator may, where distribution is involved, recommend terms and conditions of permits issued.

(2) A person who is in the business of purchasing fish from trollers, and who holds no other permit to operate as a dealer under this order, may be issued a permit to purchase troll-caught halibut only; such permit shall not apply to the purchase of halibut from regular halibut vessels, but shall apply only to the purchase of halibut taken incidentally while fishing for salmon or other species.

(g) *Issuance of permit.* (1) Any dealer, upon informal request, shall be issued a permit to deal in halibut for any port in which he operated as a halibut dealer in 1941, 1942, or in 1943 prior to July 13, 1943, or for which he had a permit to operate in 1944, unless the Area Coordinator has reasonable cause to believe that such issuance would be contrary to any of the provisions of this order or would interfere with the purposes of this order. The denial of any request shall be subject to appeal as provided in paragraph (n).

In making such request for a permit any person who operated as a halibut dealer purchasing halibut for the account of others in the years above mentioned shall furnish the Area Coordi-

nator with a statement showing:

(1) The amounts of halibut purchased in each port for each account (identified by name and address) during each of the years 1939 to 1944, inclusive, during which the applicant purchased halibut, and

(ii) The amounts of halibut, if any, purchased for the applicant's own account during the same years.

(2) Any person not qualified under the terms of paragraph (g) (1), shall upon filing a proper application as set out in paragraph (h), be issued a permit if in the opinion of the Area Coordinator the applicant has or can obtain adequate facilities, and if his operation will not unduly disrupt the marketing, processing, or distribution of fish, nor interfere with the program of the Office of Price Administration or of the War Food Administration, and if his operation would be otherwise consistent with paragraphs (b) and (1). The denial of any application shall be subject to appeal as provided in paragraph (n).

(3) No person shall hold more than one permit for the same port; but the same person may hold one permit for each of several ports.

(4) A permit issued pursuant to application as set out in paragraph (h), shall become invalid upon any change of more than 25 percent interest in the ownership of the enterprise as described, in the application therefor. Such invalid permit shall be at once surrendered to the Area Coordinator. A new application for another permit may be filed immediately.

(h) *Applications.* (1) Any person who did not have a permit to operate as a dealer in 1944 may, on or before July 31 of the fishing season, apply for a permit, filing a separate application for each port. No particular form is prescribed but any relevant data and reasons in support of the application may be included; it must include the following information:

(i) The name of the applicant.

(ii) The form of applicant's business organization, whether a sole proprietor enterprise, partnership, or corporation, and if the latter, the state of incorporation.

(iii) The name and extent of participation of every co-owner, stockholder; or other participant owning directly or indirectly a 25 per cent interest therein or more.

(iv) The port for which a permit is desired.

(v) The species of fish for purchase of which a permit is desired.

(vi) The dates of the applicant's prior operations as a dealer in fish, the ports in which he operated, and the amount of halibut purchased in each port in each of the last three years during which he purchased halibut in such port.

(vii) The equipment available to him for handling halibut in the port for which a permit is requested.

(viii) The name of a natural person, not a corporation or other fictitious entity, who will have possession of the permit in the port concerned and who will be in charge of operations under the permit there. The person so named should be the permittee himself if he is a natural person and is to be at the port, and in charge of the business; otherwise, the permittee's chief representative at the port should be named. The person so named must not be another permittee at the port.

(ix) The names and locations of the secondary dealers through whom he ex-

pects to market the halibut purchased, and a statement setting out what arrangements if any he has made to secure outlets.

(2) The application shall be certified as follows:

I certify that the above information is true to the best of my knowledge and belief.

(3) The application shall be filed in triplicate with the Area Coordinator, Area I, Office of Fishery Coordination, United States Department of the Interior, 230 Bell Street Dock, Seattle 1, Washington. The Area Coordinator may refer the application to the Office of Price Administration, the War Food Administration, the War Manpower Commission, and any other Government Agency for report as to the effect the granting of the application would have on their respective emergency programs, and for recommendation as to the action appropriate thereon, with such supporting data and reasons as the agencies deem necessary.

(i) *Allocation schedules.* (1) When the Fishery Coordinator, or his representative, deems it advisable in order to further the purposes of this order, he may set up a plan for supervised allocation of halibut among dealers, and thereafter all halibut landed shall be distributed as directed by him or in the shares directed by him in accordance with an allocation schedule. Such allocation schedule shall be worked out and applied, so far as possible, in cooperation with the dealers concerned.

(2) Any such schedule of allocation among dealers shall be aimed at furthering the purposes of this order as set out in paragraph (b), and especially at securing substantially normal distribution of the catch. It shall be based upon some equitable historical basis, taking account of the normal distribution of landings among all dealers in the Pacific Coast port.

(3) An allocation schedule shall be adjusted as deemed reasonably necessary in the opinion of the Fishery Coordinator, or his representative, to secure an adequate supply of halibut for the armed services or to adapt the schedule, in the light of changes in delivery practices of the halibut fleet and other abnormal circumstances, so as to further the purposes of this order and the aims of allocation referred to in subparagraph (2) of this paragraph (1).

(4) An allocation schedule may set aside as much as 15 per cent of the landings of halibut at any port for qualified dealers at that port who did not operate prior to July 13, 1943.

(j) *Records and reports.* (1) All dealers shall keep and preserve for not less than two years accurate records concerning purchases of halibut from fishermen and others, and sales of halibut to secondary dealers and others, showing for each transaction the date, the name and address of the other party, and the amount of halibut involved, by species.

(2) The Fishery Coordinator, or his representative, shall be entitled to make such audit and inspection of the books, records, and other writings, premises and stocks of halibut of any person, and to make such investigations, as may be necessary or appropriate in his discretion to the enforcement or administration of this order.

(3) The Fishery Coordinator, or his representative, may require from persons affected by this order periodic reports showing the amount of halibut received or sold in each separate transaction, with the date, name of seller and

vessel or name of buyer, as the case may be. The Fishery Coordinator, or his representative, may also require from persons affected by this order such other material information as he may deem necessary to give effect to the purposes of this order. These record-keeping requirements have been approved by the Bureau of the Budget and specific recording and reporting requirements subsequently prescribed will be subject to the approval of the Bureau of the Budget, all pursuant to the Federal Reports Act of 1942, 5 U.S.C. sec. 139.

(k) *Industry committees.* An industry committee may be set up by the Fishery Coordinator, or his representative, in each port where an allocation program is established. Each such committee shall be representative of the various interests concerned, as by the inclusion of one large dealer, one small dealer, and one representative of the halibut fishermen, and shall advise with the local representative of the Fishery Coordinator and make recommendations as to the allocation schedule to be set up, and any other details connected with the administration of this order.

(l) *Orders and directions.* The Fishery Coordinator, or his representative, may issue such orders and directions as he may deem advisable to accomplish the purposes of this order, and violation of any such order or direction shall be a violation of this order.

(m) *Violations, revocation.* Any person who violates this order, any order or direction issued under it by the Fishery Coordinator, or his representative, or any term or condition of any permit issued by him, or who by any act or omission falsifies records to be kept, or information to be furnished pursuant to this order, or who after the issuance of this order violates any price regulations issued by the Price Administrator, may, by a decision of the Area Coordinator, upon findings of fact made after reasonable notice and opportunity to be heard, be prohibited from purchasing more than a specified quantity of halibut; or he may be prohibited from dealing in halibut, by suspension or revocation of any permit issued, or prohibited from receiving halibut or from clearing port to fish for halibut or from fishing for halibut, for a specified period of time. In exceptional circumstances, where the Area Coordinator has reasonable grounds to believe such violation has occurred, and if the circumstances are such that he shall deem such action reasonably necessary to carry out the purposes of this order, he may immediately suspend the permit or prohibit fishing for halibut pending such hearing. Permits which have been suspended or revoked shall be surrendered at once to the Area Coordinator, Area I. Such further action may be taken against the violator as the Fishery Coordinator, or his representative, deems appropriate, including recommendations for prosecutions under section 35 (A) of the Criminal Code (18 U.S.C. sec. 80), under Title III of the Second War Powers Act (50 App. U.S.C. sec. 635), and under any and all other applicable laws.

(n) *Appeals and petitions for relief.* Any person who finds that compliance with this order imposes an unreasonable burden upon him, or who is aggrieved by any action of the Deputy Fishery Coordinator hereunder, may petition the Fishery Coordinator for appropriate relief. Any person aggrieved by any action taken by the Area Coordinator or one of his staff hereunder, or by any direction issued hereunder, or who finds that com-

pliance therewith imposes an unreasonable burden upon him may petition the Area Coordinator for appropriate relief; and after the hearing or other presentation of the matter before the Area Coordinator and after his decision, any person affected may appeal from the decision by filing a petition with the Fishery Coordinator. Any petition filed under this paragraph must include a full showing of the pertinent facts, and must be filed in triplicate; and when any petition is filed with the Fishery Coordinator a copy thereof shall be filed at or before that time with the Area Coordinator. Unless there has been a hearing on the matter earlier in the proceedings, the petitioner may have a hearing before final action by request included in his

petition.

(c) *Delegation of authority; designated representative.* For the purpose of this order, the functions, duties and powers of the Fishery Coordinator may in his absence be exercised by the Deputy Fishery Coordinator. All applications, petitions, and communications referred to herein shall, unless otherwise specified, be addressed to and filed with the Area Coordinator, Area I, Office of Fishery Coordination, United States Department of the Interior, 230 Bell Street Dock, Seattle 1, Washington; he is the Area Coordinator referred to in this order and is hereby designated as the representative of the Fishery Coordinator for immediate supervision of the administration of this order. In the perform-

ance of these functions, the Area Coordinator, Area I, may designate any members of his staff to carry out any specific functions that may be assigned; and, in addition, he may delegate specific functions to any member of the staff of the Office of Fishery Coordination, or of the Fish and Wildlife Service, with the consent of the superior of such staff member.

Effective date. This order shall become effective at once upon issuance, and where any supervised allocation program is set up pursuant to paragraph (1), deliveries of halibut received by a permittee during the 1945 season, but before the effective date of this order, shall be considered as received under the share allocated to him under such program.

DATE SET FOR END OF HALIBUT FISHING IN AREAS I AND II

The International Fisheries Commission announced on May 31 that it had determined upon June 12th midnight as the closing of all halibut fishing in Areas I and II except for fishing provided for in Article I of the Convention.

Area I is defined to include all convention waters southeast of a line running northeast and southwest through Willapa Bay Light on Cape Shoalwater.

Area II is defined to include all convention waters off the coasts of the United States and of Alaska and of the Dominion of Canada between Area I and a line running through the most westerly point of Glacier Bay, Alaska, to Cape Spencer Light, thence south one-quarter east.

Reference should be had to a copy of the regulations for further details regarding these boundaries.

PUGET SOUND SALMON CONCENTRATION PLAN CONTINUED FOR 1945

The salmon canning industry of Puget Sound, which last year operated under a program concentrating its activities in a few plants to save manpower and equipment, was placed under a similar concentration plan for the 1945 season in an order signed on May 25 by Coordinator of Fisheries Harold L. Ickes.

Repetition of the concentration program was requested by the salmon industry of the Puget Sound area, which will be faced this season with practically the same problems met in 1944--shortages of manpower and transportation facilities.

The concentration plan will result in a saving of approximately 450 cannery workers on the mainland where labor shortages are critical, and provides for the employment of 100 workers in the San Juan Islands where an abundance of labor is available. The consolidation will also release about 20 cannery tenders for use in Alaska or other localities. In addition to the saving of manpower and boats, a large saving of fuel oil, Diesel oil, gasoline, and other critical materials will be affected by the concentration order.

The only important change in the concentration plan compared with last year is the addition of one plant to the number authorized to operate. Under the 1945 program, four instead of three plants will operate, and one stand-by plant will be available if the runs warrant its operation. Since there is normally a heavy run of pink salmon in Puget Sound during odd-numbered years, it is expected that larger plant facilities will be needed this year than in 1944.

One plant at Anacortes, Washington, will pack salmon for four firms; another at Friday Harbor will pack for five firms. The other two regularly operating plants will be at Deep Harbor and LaConner, each packing for one firm. The stand-by plant for emergency operation is at Anacortes.

ALASKA FUR SEAL OPERATIONS TO BEGIN ABOUT JUNE 25

Annual sealing operations on the Pribilof Islands in the Bering Sea will begin about June 25 and it is hoped that 75,000 or more skins will be taken, Dr. Ira N. Gabrielson, Director of the Fish and Wildlife Service of the Department of the Interior, announced on May 15. Last season only 48,000 skins were taken, due in part to the fact that many of the seals reached their northern rookeries too late for their pelts to be in prime condition.

As of last August, the Pribilof seal herd numbered slightly less than 3,000,000 animals. This herd includes more than 80 percent of all the fur seals in the world.

In 1910, when the Federal Government took over direct management of the herd, it included only 130,000 seals. The increase in the size of the herd since then has been one of the triumphs of intelligent conservation, Dr. Gabrielson declared. "Our aim has been to bring this herd back to its normal size," he said, "and take only surplus males. We have been able to protect the growth of this herd and at the same time take nearly 1,500,000 pelts during the years of Government management. The Pribilof seal herd is one of the most valuable possessions of the United States and millions of dollars have gone into the Treasury from the sale of furs and byproducts."

Under an international agreement, the herd is managed exclusively by the United States and proceeds are apportioned between the United States and Canada. The United States receives 80 percent and Canada 20 percent of the furs taken. Due to labor shortages at present, only about 50,000 skins a year can be processed and the demand is considerably greater than the supply. Last month, when 23,000 skins were offered for sale at auction in St. Louis, a greater number of buyers were in attendance than had been the case with any auction of furs previously held in the United States.

SHAD HABITS STUDIED BY FISH AND WILDLIFE SERVICE BIOLOGISTS

The shad, one of the chief food fishes of the Atlantic coast, returns to spawn in the rivers in which it was hatched with a homing instinct as accurate as that of the Pacific salmon, according to evidence collected by biologists of the United States Fish and Wildlife Service.

A tag, which had been attached to a young shad four years ago at Edenton, N. C., was recovered this season in the same area from the fish as a mature adult, Service biologists have reported to Dr. Ira N. Gabrielson, Director of the Service. This is the first instance of the return of a tag from a shad tagged as an immature fish, Dr. Gabrielson said.

The recovery provides fresh evidence in support of the theory, held by biologists for several years, that the shad of any stream are a native population, returning to it year after year from their oceanic feeding grounds. Scientific studies of the racial characteristics of shad, including the microscopic markings on the scales, also support this view.

Practical importance of the knowledge that shad return to their parent streams to spawn is its application to the conservation of the resource, which has become severely depleted during the past half century, Dr. Gabrielson said. Because of the accurate homing of shad, measures taken in any locality to restore depleted runs may be expected to benefit that locality.

The shad is a migratory fish that enters coastal streams in the spring to spawn in fresh water. After spawning, the adults return to the ocean. They are followed in the fall by the young fish, which by that time are about as long as a man's finger. Adult shad return from the oceanic feeding grounds year after year to spawn, unlike the Pacific salmon, which dies after a single spawning.

Although the adults have been tagged without difficulty, biologists had not previously succeeded in tagging the young shad, which are extremely sensitive to handling. The first successful tagging was accomplished by Edgar Hollis, Fish and Wildlife Service biologist, who tagged about two thousand young shad at Edenton in 1941.

The return of the tag was made by an Edenton housewife, who discovered the red plastic tag--bearing a serial number and instructions for its return to the Fish and Wildlife Service--while preparing a shad for the table. The tag was embedded in the roe of the fish.

Shad catches on the Atlantic coast as a whole have declined from about 50 million pounds in the 1890's to some 9 million pounds in recent years, according to Dr. Gabrielson. In the Chesapeake Bay, the catch has declined from 16 million to 4 million pounds annually, due principally to excessive fishing, which has not left enough shad to spawn.

In the Delaware Bay, commercial fisheries, which once yielded 14 million pounds of shad annually, have now declined to an annual yield of 270,000 pounds. Monetary loss to the industry is estimated at more than a million dollars a year. Gross pollution of the water, which has rendered many spawning areas unproductive, is believed to be the chief cause of the decline in the Delaware.

In contrast, the Hudson River shad fishery has recovered from its low yield of 40,000 pounds in 1916 to 5,000,000 pounds in 1944. This rebuilding of the Hudson River runs has been accomplished by careful regulation to allow enough spawners to escape the fishery. Individual Hudson River shad fishermen now catch many more pounds of shad than during the previous period of unregulated fishing.

Studies of the shad resource have been carried on by the Fish and Wildlife Service for several years in cooperation with several of the Atlantic Coast States as a basis for conservation recommendations. Recently, the shad investigations have been extended at the request of the Atlantic States Marine Fisheries Commission. Present studies are concentrated in the Chesapeake and Delaware Bay area.

U. S. AGENCIES MAP OUT "PERIOD ONE" POLICIES

Statements made since V-E Day by officials of various Government agencies reflect policies that will be in effect during "Period One"--the time between victory in Europe and victory over Japan. Excerpts and summaries follow:

War Production Board--The Controlled Materials Plan will continue to operate as heretofore, but effective July 1, will relax control of steel, copper, and aluminum deliveries. WPB plans after October 1, to reduce coverage further.

Limitation, conservation, and other orders will continue to be revoked. To May 14, the following were among those revoked:

- L-38 - Industrial and Commercial Refrigeration and Air-conditioning Machinery and Equipment
- L-42, Schedule 3 - Low Pressure Heating Boilers
- L-80 - Outboard Motors and Parts
- L-140-a - Cutlery
- L-211, Schedule 13 - Steel Pipe
- L-236, Schedule 2 - Marine Joiner Hardware
- L-236, Schedule 3 - Marine Fittings Hardware
- L-278 - Steel Pipe Fittings
- L-288 - Gray Cast Iron, Malleable Iron and Brass and Bronze Pipe Fittings

WPB warns that revocation of orders will not necessarily mean immediate resumption of production, but states that it does clear the way for such production when facilities, materials, and manpower become available. It is expected that shortages of some materials, including containers, lumber, paper, tin, lead, rubber, etc., will continue.

War Manpower Commission--In Group I and II WMC Labor Areas, manpower clearances will be required for increases in programmed production, but only for plants with more than 100 wage earners. Controls in Groups III and IV Areas may be lifted by area directors at any time. A sharp drop in Group I shortage areas is expected because of cutbacks.

Office of Price Administration--"... our pricing policies must continue to give protection to all of our people against increases in the cost of living--rents, clothing, food, and other commodities and services. ... As far as OPA is concerned, I can assure you there will be no control for control's sake. Price ceilings are stop-gap, stabilizing wartime controls. We will drop these ceilings in any industry just as rapidly as conditions permit."--Chester Bowles, Administrator.

Office of Defense Transportation--"The next 12 to 15 months will be the most critical period in the history of American transportation. ... The continued co-operation of the public in travel conservation will be increasingly necessary in the coming months. ... It is now more essential than ever that every item of transportation equipment be conserved and be fully utilized in support of the war effort. ... Warehouses in the line of transport flow must continue to safeguard food and material temporarily held until transport is available. Cars must be loaded and unloaded promptly notwithstanding serious manpower shortages. ... automobiles must be kept running ... There must not be the slightest relaxation in effort or co-operation on the part of transportation workers, shippers, or the traveling public.--Col. J. Monroe Johnson, Director.

WMC EASES MANPOWER RESTRICTIONS

Small firms whose employment will not exceed 100 workers may now obtain materials without first seeking assurance from the War Manpower Commission that manpower is available, Paul V. McNutt, Chairman of WMC, and J. A. Krug, Chairman of the War Production Board, announced on May 15. Heretofore, WPB refused to allocate materials without such prior assurance. The new action was taken by WMC after agreement with WPB.

When workers are hired, however, Mr. McNutt emphasized, all WMC hiring regulations in effect in the area must be observed in order to insure necessary war production.

Under WPB Limitation Order L-41, materials may be obtained for construction projects employing no more than 25 workers without prior WMC clearance as to the labor involved. All WMC hiring regulations in effect in the area must be observed after the allocation of materials, Mr. McNutt said.

DRAFTING OF 30-37 YEAR MEN LIBERALIZED

According to a statement released May 22, 1945, by National Headquarters of Selective Service, local boards are being requested to liberalize occupational deferments for men in the 30 through 37 age group.

Accordingly, to be eligible now for occupational deferments, registrants 30 through 33, as well as registrants from 34 through 37, need only to be "regularly engaged in an activity in support of the national health, safety and interest or useful to the community, or in an activity in war production or in an agricultural occupation or endeavor essential to the war effort." Prior to this release, registrants 30 through 33 had to be "... 'necessary to' as well as 'regularly engaged in' the occupations described in order to be eligible for occupational deferment."

As commercial fishing and fish processing, according to Local Board Memorandum 115, are listed as essential activities in the war effort, men, 30-37 years of age, employed in these industries will in the future be more favorably considered for deferment. If any questions arise in matters of deferment, the nearest Area Coordinator should be approached.

OCF RELAXES CONTROL OF FISHING VESSEL CONSTRUCTION

The Office of the Coordinator of Fisheries announced in May that as of May 21, 1945, it had lifted the moratorium upon authorizations for new fishing vessel construction. This freeze had been effective since March 1, 1945. The general relaxation of controls upon civilian programs was the principal reason for this action. It is hoped that there will be no immediate rush to take advantage of this easing of control to the extent that fishing fleets will be over-built in relation to currently available manpower and other facilities and equipment which are essential to seafood production.

The Office of the Coordinator of Fisheries points out that as yet there has been no increase in controlled materials available for allotment upon CMP-4A applications. Proposed modifications of the Controlled Materials Plan will, however, make it possible for fishing vessel builders to secure materials later without allotment, insofar as their suppliers can meet their requirements.

There has been no improvement in the situation with regard to lumber.

Inasmuch as it is indicated that the Controlled Materials Plan will be terminated by the end of 1945, the Office of the Coordinator of Fisheries will not issue allotments or authorize construction scheduled for 1946. It is expected that such construction can be carried on without securing authorizations or preference ratings. The procedure requiring the submission of CMP-4A applications to Area Coordinators is unchanged, and the Office of the Coordinator of Fisheries will continue to review applications to determine whether the proposed construction will actually contribute to seafood production.

DIESEL ENGINE RESTRICTION EASED

The removal of marine diesel engines, including generator sets and auxiliaries, from the "Y" procedure under Table 11 to M-293, was announced May 29 by the War Production Board. This action eliminates the necessity of applying on Form WPB-1319 for authorization to accept delivery or deliver such equipment.

In lieu of using Form WPB-1319, fishermen now will extend a preference rating in ordering an engine. This rating may be obtained by applying on Form WPB-541 to the nearest WPB field office. In the case of new boats, constructed under authorization approved by the OCF, the preference rating of AA2X covering construction of the boat can be used in ordering the engine and no further application is necessary. Also, stock pile engines under the control of the OCF can be released directly by the Area Coordinator.

In brief, transactions involving the purchase of diesel engines are no longer cleared in Washington but will be handled entirely either by WPB field offices or the area offices of the OCF.

ROPE AND TWINE PREFERENCE APPLICATIONS REQUESTED BETWEEN JUNE 1 AND 30

Cordage wholesalers, mill agents, and retailers who maintain inventories of twine, cord, rope, and marline should file preference rating applications between June 1 and June 30 for third-quarter 1945 requirements, the Wholesale and Retail Trade Division of the War Production Board said on May 17.

Application Forms WPB-547 are available, and when completed should be filed at the nearest WPB field office, the agency said.

Cordage products affected by the new procedure are:

Cotton cordage

Cable cord	Seine twine	Wrapping twine, (polished or unpolished)	Hawser cord
		Twisted or braided rope	

Soft fiber and other twines

Wrapping twines, and other twines made of

Flax	Hemp	Isle	Jute
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Tarred and untarred marline, made of

Hemp	Jute
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Names of cordage suppliers must be included in the applications, WPB explained. Cordage received in stock with priority assistance granted on these applications should be resold without preference ratings, officials pointed out.

A previous announcement (press release WPB-LD 1266, March 15, 1945), now superseded, stated that applications were to be filed not later than the 20th of the first month of each quarter, and did not contain the present expanded list of cordage items, WPB said.

RESULTS OF ROPE TESTS REPORTED BY THE BUREAU OF STANDARDS

Ropes made of sisal, American hemp and sisal in mixture, and jute have been tested by the National Bureau of Standards. This work was undertaken to show the relative effects on

breaking strength, elongation at break, and impact strength of representative ropes, of exposure to the weather. The following conclusions are cited from a report made to the Bureau of Aeronautics of the Navy Department:

CONCLUSIONS: The ropes made from mixed sisal and hemp (2 to 1 and 1 to 1) were as resistant to weather exposure on the roof for one month and for nine months as comparable ropes made from sisal alone, judged by changes in breaking strength, elongation at break, and calculated impact strength. This conclusion is in agreement with that obtained in laboratory accelerated weathering tests previously reported.

Jute ropes exposed simultaneously were more resistant to the weathering on the roof (and in laboratory accelerated weathering) than the sisal and sisal-hemp ropes.

TERHUNE SUCCEEDS SETTE AS AREA COORDINATOR

The appointment of Hugh W. Terhune, of Olympia, Wash., as Area Coordinator of the Office of the Coordinator of Fisheries for the area comprising the State of California was announced on May 25 by Dr. Ira N. Gabrielson, Deputy Coordinator of Fisheries.

Mr. Terhune succeeds O. E. Sette, who has retired as Area Coordinator because of ill health and will return to his former position in the Fish and Wildlife Service, in charge of biological investigations of the fisheries of the southern Pacific coast of the United States. Mr. Sette was detailed from this position to serve as Area Coordinator in 1943.

Mr. Terhune has served for the past year as enforcement officer in the area office of the Coordinator of Fisheries at San Francisco. The principal duty of this office is the administration of a production program for the Pacific pilchard or sardine industry, America's largest fishery. The production program was inaugurated in 1943 to assure maximum production of canned fish and other products of this fishery.

Prior to his affiliation with the Coordinator's Office, Mr. Terhune was employed by the War Shipping Administration. Before the war, he was a member of the staff of the Fish and Wildlife Service and the former Biological Survey, serving as Executive Officer of the Alaska Game Commission and Chief of the Division of CCC and Construction.

ACTIVE WFA ORDERS

The War Food Administration on May 1 reported in effect the following War Food Orders which affect fishery operations:

Order No.	Commodity	Last Amendment No. 14	Agriculture Ext. No.	Room in So. Agric. Bldg.
42	Fats and Oils in Edible Products	No. 14	3441	5135
42a	" " " Protective Coatings, Coated Fabrics, and Floor Coverings	4	3441	5135
42b	Fats and Oils in Soap	4	3441	5135
44	Canned Fish and Shellfish	8	3200	3142
63	Food Imports	-	5753	1210
72	Salted Fish	4	2773	3138
111	Food Storage Facilities	1	5757	6333
116	Allocation of Freezer Space	2	5757	6333

BOOKLET ON SUCKER RECIPES PUBLISHED IN MICHIGAN

A folder on cooking suckers and the preparation of this fish for cooking recently was prepared by the Agricultural Experiment Station of Michigan State College in cooperation with the Michigan Department of Conservation. This attractive 8-page folder, containing recipes for oven, broiler, and top-of-the-stove dishes and salads using suckers, is similar to the folders for lake herring and carp prepared previously by the College.

Copies of Experiment Station Folder 4 may be obtained from the Michigan State College Bulletin office, East Lansing, Michigan, or the Department of Conservation, Lansing.

PROGRESS IN MARKET DEVELOPMENT

The Fish and Wildlife Service has added to its library a 1-reel, 16-mm. black and white sound film titled, "Shellfishing." Depicted in the film are the methods of fishing for clams, oysters, crabs, and lobsters. Shucking oysters and clams is shown, as well as steaming and picking crab and lobster meat. This film may be borrowed by any responsible group, firm, or individual for exhibition purposes. Request it from the Division of Information, Fish and Wildlife Service, Merchandise Mart, Chicago 54, Illinois. Be sure to designate the date of showing but allow at least four weeks because of previous bookings.

During the past 25 years, to defray the cost of producing films about the mining industry, the mineral and allied industries have paid out more than two and a quarter million dollars (\$2,250,000). The Bureau of Mines, in the Interior Department, has provided technical assistance, handled distribution of the films, and maintained a small staff to circulate and keep them in repair. The pictures were produced cooperatively through a simple agreement which provides that the sponsors finance the production and that the production itself be supervised by the Bureau of Mines. At least 25 different sponsors have made it possible for the Bureau of Mines to present the stories of the mining industry to children and adults in this country and some foreign countries. In several cities, the local Boards of Education have standing orders with the Bureau of Mines for copies of each film produced. These films are shown in all the schools in these cities. In one year, alone, over 7,500,000 persons were shown some of the sound films about the mining industry, journeying over and under the world as metals were mined and, then, manufactured into familiar products.

How much does the average person know about the fishing industry? How much do school children--the industry's future customers--know about how fish are caught and processed? The answer is obvious--little is known. Therefore, the Fish and Wildlife Service, through its Division of Commercial Fisheries' Market Development Section, is urging that the industry increase the fishery knowledge of present and potential consumers. Motion pictures of the type mentioned can readily begin a new era of understanding which will eventually lead to a greater appreciation of the value of fishery commodities.

The Fish and Wildlife Service would be glad to cooperate with various divisions of the fishing industry or allied interests in preparing a series of such motion pictures. The Service hopes, for example, that one of the first films to be produced will depict the various types of nets and gear used in fishery production, showing how they operate and the type of fishery for which each is used. The script, it is planned, will conclude with the preparation of fish in the home. The story can be told in one or two reels of 16 mm. film, with sound. The Service, in cooperation with the sponsor, will prepare the script, supervise the production, and, after the film is completed, arrange for wide showing throughout the country to educational institutions, technical and scientific societies, civic and business associations, and social and religious groups among others. Although no advertising material may appear in the film, the cooperator's name will be acknowledged at the opening and closing of the picture. The films will be professional productions throughout, being produced from script to completed sound-on-film by motion picture companies whose talents are devoted to this type of work.

In February, a short course in the home canning and salting of fish was given to the home demonstration agents of the State of North Carolina at East Carolina State Teachers College, Greenville, North Carolina. It was conducted by one of the Service's technologists and was attended by 26 agents.

In March, a series of demonstrations in the home preservation of fish was given before a total of about 900 County Agents and others throughout the State of Florida. Another of the Service's technologists conducted this series.

A representative of the Division of Commercial Fisheries' Market Development Section has been transferred to the Boston office located in Room 733, Post Office Building. This Marketing Specialist will assist frozen food locker plant operators in the New England States to secure fish and fish products, and will instruct them in the proper care of these products. He will serve also to disseminate leaflets, bulletins, and other publications to radio, newspaper, and magazine editors and home economists who wish to issue information about the fishery industries to their readers and listeners.

A Home Economist has become associated with the Division's Market Development Section. After a training period at the College Park, Md., Laboratory, she will be available to demonstrate fish preparation and fish cookery throughout the country.

One of the Division of Commercial Fisheries' Marketing Specialists left for Alaska at the end of May to confer with the Alaska Development Board. A study of the fishery products processed in Alaska will be made, and complete data will be obtained to enable him to locate markets for these products in the States. The entire detail is expected to last about three months. The results of preliminary talks with some dealers in the Middle West and East give cause for belief that much good will come of this venture because keen interest has been expressed.

Lists of frozen food locker plants compiled by States, and of officers of State Locker Associations, may be obtained by writing to the Fish and Wildlife Service, Washington 25, D. C. Some 5600 locker plants with about 2,000,000 lockers and a storage capacity of about 600,000,000 pounds of food are operating now. There are some in every State, and 75 percent or more are in areas of less than 5000 population. Many of these operators have expressed interest in merchandising fishery products, fresh or processed. With the months of abundant productions approaching, these plants should be solicited and served.

Some 29,500 schools which supply lunch-time meals for about 3,700,000 children participated in the School Lunch Program during 1943-44. Fish, in different forms, were served in some of these meals. That more would have been served is known from information received from certain of the schools. Ease of handling is one very important consideration, and economy is another. In New York City, for example, school authorities are interested in a No. 10 size can of cooked fish flakes which can be mixed with other ingredients to make sandwich spreads. It is probable that such a product would be satisfactory for almost any of the schools serving noontime meals.

On May 8 and 9, a course was given at the Fish and Wildlife Service Technological Laboratory in Seattle, Washington, to 25 Washington State College Extension Agents to help them answer inquiries about fish.

The program included the following activities:

- | | |
|---------------------------------|-----------------------------------|
| (1) Identification of species | (5) Quality determination in fish |
| (2) Dressing and filleting fish | (6) Wrapping fish for freezing |
| (3) Fish cookery | (7) Brining fish |
| (4) Smoking fish | (8) Canning fish |

This and similar programs are given to disseminate information which will enable others to assist the Service in increasing and developing markets for fishery products. Extension Agents frequently lecture on and demonstrate to homemakers the proper care and handling of food products. These Agents must be prepared to answer many types of questions asked by those in attendance at their demonstrations, and a short course, such as this, provides them with sufficient information.

Service marketing specialists, technologists, and home economists are frequently available for participation in similar activities if their advice is requested by reliable groups or organizations and the results are expected to assist in fostering a better understanding of fishery products and the fishery industries.

PROGRESS IN TECHNOLOGY - APRIL

Puerto Rico--Preliminary work was begun on the organism causing reddening in salt fish to check on the work previously completed and settle some of the questionable points.

Compilation of data on the composition of Puerto Rican food fishes was completed.

Seattle--Storage tests were begun to determine the effect of various antioxidants on block frozen and salted herring.

Contrary to expectation, oil from the dark portion of tuna was found to be more stable than that from the light portion.

Studies on a field method of testing livers for vitamin A were started.

Ketchikan--Examination of split halibut heads which had been brined and stored at 38° F. for over four months indicated very little deterioration in either flavor or texture. Due to changes occurring at elevated temperature, however, a close control of shipping conditions is necessary for marketing this product.

A can of lightly-smoked herring in tomato sauce was opened after two years and found to be in very good condition, although the smoke flavor was slightly strong.

College Park--Experimental packs of liver paste were made to develop a formula which could be used in canning seal livers in the Pribilof Islands for local use.

Storage tests with frozen shucked oysters, involving 21 different types and combinations of packages, were started.

Tests were begun on brine storage of fish.

CHANGES MADE IN MARKET NEWS OFFICE PERSONNEL

New York--Filling a vacancy caused by the resignation of Francis J. Anderson, Richard T. Whiteleather, Fishery Marketing Specialist, on March 22 was named in charge of the New York Market News office. Mr. Whiteleather, who also supervises the activities of the Section of Fishery Statistics in the Middle Atlantic area, had previously completed over seven years with the Fish and Wildlife Service following a specialized fishery education at the College of Fisheries in Seattle, Washington, and various temporary periods of employment in the fisheries. After his arrival in Washington, D. C., in January 1938, he conducted statistical surveys in the South Atlantic and Chesapeake Bay States and Delaware and from July 1941 to March 1945 was in charge of the Service's fishery exploratory work in the Caribbean Sea. In this latter work, he outfitted and operated exploratory fishing vessels in the waters off Puerto Rico, the U. S. Virgin Islands, Trinidad, and British Guiana.

Albert Dorsey, formerly in charge of the Service's statistical work in Gloucester, Mass., became Mr. Whiteleather's assistant in New York on April 2.

New Orleans--C. West Jacocks, until recently assistant Area Coordinator of the Office of the Coordinator of Fisheries with headquarters at Jacksonville, Florida, on May 1 was placed in charge of the Market News office of the Fish and Wildlife Service in New Orleans.

Mr. Jacocks was in Columbia, S. C., with the former Bureau of Fisheries and the succeeding Fish and Wildlife Service from 1933 until December 1942, when he transferred to the Regional Office of the Service in Atlanta. From Atlanta, he went to the Office of the Coordinator of Fisheries in Jacksonville, when that war-time fishery agency was established two years ago.

Mrs. Lorraine D. Peterson, who preceded Mr. Jacocks at New Orleans, had been in charge of that office from December 1942.

Chicago--Walter W. Donovan, Fishery Marketing Specialist in charge of the Chicago office, left the latter part of May on a 3-month detail to Alaska, where he will work with the Alaska Development Commission. In his absence, the office is in charge of Cyrus Chilton assisted by Norman Wigutoff.

In addition to his experience in Chicago, Mr. Donovan is familiar to the fishery trade in New York City, where he was assistant to Francis J. Anderson for two years, and in Boston, where he was connected several years with wholesale fish companies.

SECTIONAL REPORTS AVAILABLE

During recent months the following statistical summaries have been published by the Section of Fishery Statistics of the Division of Commercial Fisheries. Copies may be obtained free of charge from the Fish and Wildlife Service, Washington 25, D. C.

Current Fishery Statistics No. 114	- Lake Fisheries, 1942
" " " " 143	- Fisheries of Alaska, 1943
" " " " 164	- Fisheries of the New England States, 1942
" " " " 165	- Middle Atlantic Fisheries, 1942
" " " " 180	- Pacific Coast Fisheries, 1942
" " " " 181	- Chesapeake Fisheries, 1942

Fresh Fish Trade

APRIL RECEIPTS ON NEW YORK MARKET SHOW SLIGHT INCREASE OVER 1944

Receipts of fresh and frozen fishery products in New York's salt-water market for the month of April showed an increase of 3 percent over March and of 2 percent over April 1944, according to the Service's New York Market News office. Although the total receipts for April showed little variation from these earlier periods, there was considerable difference in the receipts of individual species. The shad season reached its peak in April, and receipts compared favorably with April of 1944. However, in 1944, more than 75 percent of the April shad receipts were received during the last two weeks of the month, forcing prices downward to a low of 7 cents per pound for roe and 1 cent for buck. April receipts this year were heaviest from April 9 to 21, during which time 64 percent of the month's total were received. In this period, prices reached a low of 14 cents per pound for roe and 6 cents for buck shad. As receipts decreased toward the end of the month, prices strengthened, and for the week ending April 28 did not go lower than 20 cents and 8 cents per pound for roe and buck shad, respectively. Shad producers thus received better returns in April this year than for April of last year.

Forty-seven fishing vessels landed 839,000 pounds of butterfish at Fulton Market, either whole or part trips, in April 1944 against 290,000 pounds by 26 vessels in April 1945. This accounts, in the most part, for the decrease of 58 percent. This same ratio of landings is reflected in the drop in scup (porgy) receipts this year.

Receipts of Fresh and Frozen Fishery Products--Salt-water Market, New York City*

Item	April 1945	April compared with March 1945 April 1944		March 1945	April 1944
	Pounds	Percent	Percent	Pounds	Pounds
Fish	18,902,000	+ 9	- 1	17,377,000	19,022,000
Shellfish, etc.	5,906,000	- 11	+ 13	6,634,000	5,213,000
Total receipts	24,808,000	+ 3	+ 2	24,011,000	24,235,000
Important Items:					
Butterfish	467,000	+317	- 58	112,000	1,101,000
Cod	2,442,000	- 28	- 11	3,405,000	2,748,000
Croaker	723,000	+162	+ 69	276,000	429,000
Flounders:					
Blackback	1,642,000	+ 93	+ 11	849,000	1,485,000
Yellowtail	648,000	- 56	- 62	1,458,000	1,709,000
Fluke	376,000	- 73	- 2	1,374,000	382,000
Haddock	2,860,000	+ 12	+ 47	2,380,000	1,809,000
Mackerel	1,873,000	+	+ 43	227,000	1,314,000
Pollock	389,000	- 5	- 17	408,000	467,000
Scup (porgy)	864,000	+ 44	- 15	602,000	1,021,000
Shad	2,517,000	+483	- 6	432,000	2,667,000
Sole, lemon	657,000	+ 94	+ 39	339,000	473,000
Striped bass	197,000	- 29	- 72	277,000	702,000
Whiting	641,000	- 11	+ 50	724,000	428,000
Filletts, unclassified	1,041,000	+ 55	+171	671,000	384,000
Clams, hard	2,750,000	- 10	+ 20	3,049,000	2,285,000
Lobsters, live	681,000	- 2	+ 45	693,000	469,000
Oysters, shell	1,159,000	- 29	- 7	1,624,000	1,247,000
Shrimp (prawn)	619,000	+ 86	+ 41	333,000	440,000
Arrivals by:					
Fishing vessels	1,572,000	- 29	- 51	2,226,000	3,210,000
Truck, freight, and express	23,236,000	+ 7	+ 11	21,785,000	21,025,000

*Excluding imports entered at New York City.

The 1945 mackerel season started earlier than last year, with receipts from Virginia from April 1 to 14 being approximately 531,300 pounds against 35,500 in 1944. For New Jersey,

the comparison showed 121,200 in 1945 against 8,400 for 1944; for Maryland, 34,600 against 3,800. During the period April 15 to 30, Virginia receipts amounted to 279,000 against 494,800 for 1944; New Jersey, 634,400 against 285,900; Maryland, 194,700 against 256,900.

Yellowtail flounder receipts were light compared with March 1945 and April 1944. Apparently this species was very scarce on the usual fishing grounds. Cod and haddock continued to arrive in good quantity, with haddock leading all species received in New York. Striped bass receipts showed a very large drop compared with 1944. Maryland, which shipped most of this species in 1944, sent very little to New York this year.

Landings at Fulton Market from 40 trips this month totaled approximately 1,582,000 pounds, as compared with 60 trips in March totaling 2,226,000 pounds, and 66 trips in April 1944 totaling 3,210,000 pounds.

CHICAGO RECEIPTS IN APRIL SHOW A DECREASE OF 23 PERCENT OVER MARCH

Total receipts of fresh and frozen fishery products on the Chicago market during April decreased 23 percent compared with March but increased 16 percent over April 1944, according to the Service's Market News office in that city.

Receipts of fresh-water fish increased 24 percent over March and 9 percent over April 1944; receipts of salt-water fish decreased 27 percent from March and increased 16 percent over April 1944; and shellfish arrivals were very slightly less than for March but increased 158 percent over April 1944.

A general comparison of receipts indicates a continued trend in 1945 toward a relatively greater consumption of salt-water fishery products.

Receipts of Fresh and Frozen Fishery Products at Chicago

Item	April 1945	April 1945 compared with Mar. 1945	April 1944	4 months Jan.-Apr. 1945	4 mos. 1945 compared with 4 mos. 1944	12 months Jan.-Dec. 1944
Classification:	Pounds	Percent	Percent	Pounds	Percent	Pounds
Fresh-water fish	3,475,000	- 24	+ 9	13,568,000	- 8	38,132,000
Salt-water fish	1,300,000	- 27	+ 16	6,681,000	+ 9	20,439,000
Shellfish, etc.	442,000	-	+158	2,228,000	+ 18	8,089,000
Total receipts	5,217,000	- 23	+ 16	22,477,000	- 2	66,660,000
Important Items:						
Blue pike	380,000	+	+ 53	437,000	+ 76	2,237,000
Buffalofish	139,000	- 37	+ 32	638,000	+ 5	1,182,000
Carp	249,000	- 35	+ 23	1,073,000	- 7	2,703,000
Lake herring	137,000	- 53	- 23	821,000	- 21	3,086,000
Lake trout	519,000	- 41	- 11	2,096,000	- 23	7,310,000
Sheepshead	293,000	+102	+ 99	619,000	+ 4	1,604,000
Suckers	299,000	- 15	+ 11	957,000	+ 2	2,373,000
Whitefish	344,000	- 72	- 29	3,063,000	+ 5	5,893,000
Yellow perch	203,000	- 2	+ 64	623,000	+ 2	1,896,000
Yellow pike	440,000	+ 86	+ 6	1,175,000	- 4	3,443,000
Filletts:						
Cod	619,000	+174	+ 27	1,003,000	- 25	2,401,000
Rosefish	114,000	+ 1	- 12	564,000	- 15	2,272,000
Shrimp	289,000	+ 2	+214	1,227,000	+ 48	5,758,000
Loading Sources:						
Massachusetts	714,000	+ 52	+ 76	2,233,000	- 4	5,299,000
Ohio	835,000	+333	+186	1,056,000	+252	2,806,000
Manitoba	332,000	- 82	- 27	4,335,000	- 18	7,907,000
Domestic total	4,039,000	+ 2	+ 28	14,741,000	+ 20	45,948,000
Imported total	1,178,000	- 58	- 12	7,736,000	- 17	20,712,000
Transported by:						
Truck	885,000	+ 6	- 21	2,719,000	- 46	14,664,000
Express	2,724,000	+ 7	+ 38	9,303,000	+ 23	27,650,000
Freight	1,608,000	- 53	+ 16	10,455,000	+ 2	24,346,000

SEATTLE RECEIPTS MAKE 19 PERCENT GAIN DURING APRIL

Landings and receipts of fresh and frozen fishery products at Seattle during April totaled 4,377,000 pounds, an increase of 19 percent over March and 33 percent over April 1944, according to the Service's local Market News office.

These gains were shown largely in the heavier receipts of bottom fish produced by otter-trawling, with true cod, rockfish, and sole accounting for the major portion of these arrivals. In addition, heavier receipts of perch and smelt contributed much to the over-all gain.

Receipts of salmon, which were considerably less than those for comparable periods, consisted mainly of coastwise vessel shipments from Alaska and imports from British Columbia. Receipts of shark disappeared completely during the month, and the total for the first four months of 1945 was only 9,000 pounds, 98 percent below the 1944 total of 387,000 pounds.

The total figure of 15,713,000 pounds for the first four months of 1945 were slightly over 3 percent greater than the corresponding period in 1944 when receipts totaled 15,284,000 pounds.

Receipts of Fresh and Frozen Fishery Products at Seattle*

Item	April 1945	April 1945 compared with		4 months Jan.-Apr. 1945	4 mos. 1945 compared with 4 mos. 1944	Jan.-Dec. 12 months 1944
		Mar. 1945	Apr. 1944			
Classification:	Pounds	Percent	Percent	Pounds	Percent	Pounds
Total fish and shellfish	4,377,000	+ 19	+ 33	15,713,000	+ 3	68,140,000
<u>Important Items:</u>						
Cod, true	203,000	+ 93	+217	544,000	+ 93	641,000
Lingcod	282,000	- 11	- 31	1,109,000	- 29	6,276,000
Rockfish	1,847,000	+231	+431	3,163,000	+195	5,610,000
Salmon	224,000	- 39	- 20	1,423,000	- 47	12,244,000
Smelt	400,000	+	+	747,000	+200	559,000
Sole	444,000	+283	- 32	858,000	- 38	6,306,000
Shellfish	483,000	- 9	- 1	2,278,000	+ 4	4,708,000
Livers	253,000	+ 16	- 51	933,000	- 9	5,985,000

*Halibut and shark fleets and receipts from local and all other sources.

1945 GULF FISHERY PRODUCTION SHOWS FAIR GAINS OVER 1944

Production of seafoods in the Gulf of Mexico area increased substantially during the first four months of 1945, compared with the previous year, according to the Service's Market News office at New Orleans.

In response to the heavy demand for shrimp, production of this shellfish increased 39 percent over the same period in 1944. Favorable weather and no interruption of fishing by strikes, which disrupted the industry last year, helped make the larger catches possible.

A total of 52,386 barrels of shrimp were received at Gulf coast centers of the industry, compared with 37,753 barrels during the first four months of 1944. Catches for this season are normally light: Peak production in the shrimp fishery is in the fall months.

The catch of hard crabs rose from 1,351,000 pounds in 1944 to 2,325,000 pounds; production of fresh-cooked crabmeat from 147,000 to 237,000 pounds. The yield of other specialties, including crayfish, frogs, turtles, terrapin, and processed crabmeat, was approximately triple the 1944 production of these items.

Production of Fishery Products in the Gulf States*

Item	Unit	April 1945	April 1945 compared with		4 mos. Jan.-Apr. 1945	4 mos. Jan.-Apr. 1944	12 months Jan.-Dec. 1944
			Mar. 1945	Apr. 1944			
			Percent	Percent		Percent	
Shrimp:							
For canning	Bbls.	-	-	-	8,015	+	115,915
Other	"	9,160	+ 41	+ 33	44,371	+20	239,115
Total	"	9,160	+ 34	+ 33	52,386	+39	355,030
Oysters:							
For canning	"	59,619	- 17	- 30	196,774	-36	326,889
Other	"	25,473	- 35	+ 45	145,538	+30	248,513
Total	"	85,092	- 23	- 17	342,312	-18	575,402
Crabs, hard	Lbs.	1,268,800	+104	+109	2,325,380	+72	11,368,787
Crabmeat, fresh-cooked	"	137,629	+119	+104	236,815	+62	1,107,843
Salt-water fish	"	281,300	- 34	+ 3	1,635,945	- 1	5,207,784
Fresh-water fish	"	84,550	- 4	+ 39	263,846	+14	691,977

*Includes production in Alabama, Mississippi, Louisiana, and Texas.

Bowfin, buffalofish, carp, catfish, and gaspergou or sheepshead, all fresh-water fish, increased slightly in quantity caught, production for the first four months of 1945 totaling 264,000 pounds compared with 231,000 pounds.

Salt-water fish and oysters were the only Gulf coast fishery products to show a decline in production. Still hampered by the serious labor shortage, the oyster industry's output declined 18 percent--342,000 barrels compared with 419,000 barrels last year. Production of salt-water fish, including thirty or more species, totaled 1,636,000 pounds, a decline of only about 1 percent from 1944.

During April, shrimp production showed some gain over both the previous month and April 1944, despite a closed season on inside fishing which extends from March 16 to May 15.

AMDT. 45 TO MPR-418 EFFECTIVE MAY 16

Present ceiling prices of fresh round (whole) rock cod (red rockfish or red cod) have been increased at all levels of distribution by about one cent a pound on an average over-all yearly basis, the Office of Price Administration announced on May 15. The average increase for fresh rock cod fillets will be about two cents a pound.

The increases are necessary to adjust fishermen's maximum prices to levels that are not below their 1942 average for the species, as required by the Emergency Price Control Act of 1942, as amended, OPA said. The new prices are established on a year-long basis, replacing the former seasonal prices provided for rock cod, caught and consumed principally on the West Coast.

For line-caught rock cod landed in Marin County, Calif., or any point south, and delivered in California, Nevada, or Arizona, an addition of $2\frac{1}{2}$ cents per pound is made to the fishermen's price for the round, drawn, and dressed fish. Wholesalers may add $1\frac{1}{2}$ cents when line-caught fish is filleted.

Line-caught rock cod is landed in the central and southern parts of the California coast. Hook-and-line rock cod has ordinarily been consumed locally, and fishermen have historically received higher prices than drag-boat fishermen, who land their catches in other areas on the West Coast, OPA said.

Simultaneously with this action, ceiling prices for frozen rock cod will be increased in Amdt. 30 to MPR-364 to reflect the adjustment in fishermen's prices. Frozen fish ceilings are now being studied as a part of a forthcoming general revision of ceiling prices for fresh and frozen West Coast fish. Most frozen rock cod is now being sold as fillets to the Army, and the adjustment will ensure that there will be no break in production in the meantime, OPA said.

In addition, a new ceiling price of 20 cents per pound for frozen dressed Columbia River smelts is established. This item was previously sold entirely to the Army at $21\frac{1}{2}$ cents per pound. The new ceiling is fixed for sales to both the Army and civilians and represents a base price to which may be added certain allowances for containers and freight.

Amdt. 45 to MPR-418--Fresh Fish and Seafood--became effective May 16. Excerpts follow:

1. Section 9 (g) is amended to read as follows:

(g) Transportation allowance to primary fish shipper wholesalers of certain Alaskan fish. A primary fish shipper wholesaler who transports lingcod, true cod, red cod (rock cod), sablefish, troll caught salmon or halibut landed in Alaska to the continental United States may (subject to the special rules affecting halibut in section 9 (f)) add as part of his maximum price his actual transportation cost (excluding local trucking, hauling and handling charges) from the shipping point in Alaska to his receiving point in the United States but only when he records the transportation cost on an

invoice to the customer purchasing the fish. A purchasing wholesaler or subsequent wholesalers of that fish may pass on such transportation cost as part of the maximum selling price but only if they in turn record it on an invoice to their customers. In no case may the added transportation cost exceed the common carrier rate from the shipping point to the wholesaler's receiving point.

2. In section 20 the definition of "troll caught" is amended to read as follows:

"Troll caught" or "line caught" means fish caught by hook and line in ocean waters.

3. In section 22, Table A, the name of

Schedule No. 20, Cod, True, is amended (by adding footnote 4, which is set out below) to read as follows:

"Cod, true (Pacific coast) (*Gadus macrocephalus*)."

4. In section 22, Table A, Schedule 23 is amended (by adding footnotes 4 and 41 to its name and by changing the prices) to read as follows:

5. In section 22, following Table A, footnote 4 is amended to read as follows:

"Deduct the following amounts when this species of fish is landed ex-vessel in the following Alaskan ports: Ketchikan, $1\frac{1}{4}$ ¢;

Wrangell and Petersburg, 1½¢; Juneau, Sitka and Pelican City, 2¢; and Port Williams, 3½¢. When landed ex-vessel in any other port in Alaska deduct the amount specified for the nearest port listed.

6. In section 22, following Table A, footnote 41 is added to read as follows:

"For line caught red cod (rock cod) landed in California in Marin County or any point

south and delivered to the purchaser in California, Nevada or Arizona add 3½¢ cents to the table prices for round, drawn and dressed fish and add 1½¢ cents to the table prices for fillets.

TABLE A--MAXIMUM PRICES FOR PRODUCERS OF FRESH FISH AND SEAFOOD

Schedule No.	Name	Item No.	Style of dressing	Size	Price per pound, January through December, bulk-ex-vessel
25.....	Red Cod (Rock Cod) (Pacific Coast) (Sebastodes species) ^{1, 2}	1	Round.....	All sizes.....	\$0.04½
		2	Drawn.....	All sizes.....	.05
		3	Dressed.....	All sizes.....	.06

7. In Section 22, Tables B, C, and D, Schedule No. 25 is amended to read as follows:

Sched. No.	Species	Item No.	Style of dressing	Size	Months	Price per pound			
						TABLE			
25	Red Cod (Rock Cod) (Sebastodes species) ^{4/ 41/}	1	Round	All	Jan-Dec	6½	7½	8½	
		2	Drawn	"	"	8	9	10	
		3	Dressed	"	"	10	11	12	
		4	Fillets	"	"	25½	26½	28½	

*TABLE B--MAXIMUM PRICES FOR PRIMARY FISH SHIPPER SALES OF FRESH FISH AND SEAFOOD.

TABLE C--MAXIMUM PRICES FOR RETAILER-OWNED COOPERATIVE SALES AND SALES BY WHOLESALERS OTHER THAN PRIMARY FISH SHIPPER WHOLESALERS TO OTHER WHOLESALERS OF FRESH FISH AND SEAFOOD.

TABLE D--MAXIMUM PRICES FOR CASH AND CARRY SALES OF FRESH FISH AND SEAFOOD.

AMDT. 6 TO MPR-579 EFFECTIVE MAY 22

New Bedford filleters who ship fillets to Boston for freezing now are permitted to add transportation costs from New Bedford to Boston when such frozen fillets are delivered at the latter city to the Quartermaster Corps of the United States Army, the OPA announced on May 22 in issuing Amdt. 6 to MPR-579. By virtue of Section 3.11 (a) the transportation allowance may in no event exceed the common carrier rate from New Bedford to Boston.

This action provides an exception to the general rule that the processor may add fresh fish transportation only from the nearest port where the particular species is landed to the place where it is frozen. North Atlantic species of fish are landed in Boston so the New Bedford filleters could ordinarily add no transportation if they shipped the fillets there for freezing.

The Quartermaster Corps has advised the Office of Price Administration that it will need fish landed at New Bedford as well as Boston in order to meet its requirements for frozen fish. New Bedford filleters have agreed to supply the Army with 25 percent of their production, but the facilities in New Bedford are inadequate to permit the freezing of this percentage. To induce the filleters to freeze some of their production in Boston, this amendment permits them to recover their additional expense of transporting the fillets to the Boston freezers.

This amendment also makes it explicit that the prices listed in both the fresh and frozen fish tables for hake fillets also apply to mud (red) hake fillets.

Amdt. 6 to MPR-579--Certain Species of Fresh and Frozen Fish and Seafood--became effective May 22. Excerpts follow:

(2) *New Bedford fillets.* If a processor fillets fresh fish at his place of business in New Bedford, Massachusetts, and freezes the fillets at Boston, Massachusetts, where he delivers them to the Quartermaster Corps of the United States Army, he may add to his table price the transportation cost from New Bedford to Boston. (The allowance taken for such transportation may not

exceed the common carrier rate from shipping to receiving points. See paragraph (a) of this section 3.11).

2. In section 10.1, Table IA, footnote 3 is added to the name of Schedule No. 9.

3. In section 10.1 following Table IA, footnote 3 is added to read as follows:

¹ The prices listed for hake fillets in Schedule No. 8 also apply to mud hake fillets.

4. In section 10.1, Table IB, footnote 4 is added to the name of Schedule No. 9.

5. In section 10.1, following Table IB, footnote 4 is added to read as follows:

¹ The prices listed for hake fillets in Schedule No. 8 also apply to mud hake fillets.

This amendment shall become effective May 22, 1945.

PACIFIC TUNA LANDING CHARGES SET AT \$22.50 PER TON

Order No. G-6 under MFR-165 was amended on May 17 by the Office of Price Administration's Region VIII, in the following respects:

Paragraph (a) is amended to read as follows:

- (a) The adjusted maximum price for the "services rendered in connection with the handling of fresh tuna fish" in the States of Washington, Oregon, and California shall be as follows:
- (1) \$22.50 per net ton of 2,000 pounds, plus cost of transportation (if such cost is borne by the seller) from dock or other customary receiving point at port of entry to "customary receiving point of canner."
 - (2) This maximum price, however, shall not apply when the "customary receiving point of canner" is a dock or other point at which boats may be unloaded at the port of entry where the services are being performed or when the facilities for unloading, weighing, loading in cars, trucks, or other conveyances, or any other necessary facilities are provided by the buyer.

This amendment to Order No. G-6 shall become effective May 22, 1945.

Frozen Fish Trade

UNITED STATES AND ALASKAN COLD-STORAGE HOLDINGS DECLINE 18 PERCENT IN MAY

Stocks of frozen fishery products in cold-storage warehouses on May 1 totaled 32,509,000 pounds, 18 percent less than on April 1, and 37 percent below May 1, 1944, according to the Service's Current Fishery Statistics No. 187. The holdings were 20 percent under the 5-year average. The only increases in stocks occurring during April were 69 percent for croakers and 25 percent for cured herring. Stocks of all other items declined.

Holdings of Fishery Products in United States and Alaskan Cold-storage Plants

Item	May 1, 1945 Pounds	May 1 compared with			April 1, 1945 Pounds	May 1, 1944 Pounds	5-year average* Pounds
		Apr. 1, 1945 Percent	May 1, 1944 Percent	5-year average* Percent			
Frozen fish and shellfish:							
Total holdings	32,509,000	-18	-37	-20	39,830,000	51,545,000	40,717,000
Important Items:							
Croakers	393,000	+69	-47	-42	232,000	739,000	675,000
Fillets:							
Cod	1,931,000	-13	-48	+9	2,209,000	3,713,000	1,776,000
Haddock	1,349,000	-13	-45	-52	1,558,000	2,441,000	2,792,000
Pollock	207,000	-23	-55	-74	269,000	457,000	767,000
Rosefish	738,000	-36	-19	-52	1,149,000	907,000	1,534,000
Halibut	516,000	-68	+29	-81	1,612,000	401,000	2,670,000
Mackerel	652,000	-56	-58	-38	1,492,000	1,547,000	1,059,000
Mullet	109,000	-52	-88	-61	229,000	872,000	283,000
Sablefish (black cod)	1,207,000	-26	+4	+1	1,639,000	1,160,000	1,191,000
Salmon (all species)	1,049,000	-62	-32	-44	2,778,000	1,540,000	1,882,000
Scup	136,000	-58	-79	-67	324,000	633,000	409,000
Whiting	1,225,000	-10	-27	-12	1,368,000	1,672,000	1,389,000
Whitefish	1,031,000	-26	-51	-27	1,401,000	2,114,000	1,422,000
Shrimp	2,671,000	-35	+9	+14	4,078,000	2,448,000	2,343,000
Cured fish:							
Herring, cured	13,551,000	+25	+32	-9	10,884,000	10,779,000	14,960,000
Salmon, mild-cured	737,000	-29	+347	-69	1,037,000	165,000	2,346,000

*Since the date for reporting holdings of fishery products was changed from the 15th to the first of the month beginning January 1, 1943, data included in the "5-year average" consist of a combination of figures for the two periods.

DOMESTIC FREEZINGS OF FISH SHOW LARGE INCREASE IN APRIL

Cold-storage plants in the United States and Alaska froze nearly 13 million pounds of fish and shellfish during April, according to the Service's Current Fishery Statistics

No. 187. This was an increase of 88 percent compared with March. Freezing of smelt and cod and haddock fillets showed particularly large increases over the previous month, while rosefish freezings declined.

Freezings of Fishery Products in the United States and Alaskan Cold-storage Plants

Item	April 1945	April compared with March	March 1945
	Pounds	Percent	Pounds
Total fish and shellfish	12,962,000	+ 88	6,890,000
<u>Important Items:</u>			
Fillets:			
Cod	1,213,000	+122	547,000
Flounders	169,000	+ 23	137,000
Haddock	1,811,000	+ 53	1,186,000
Rosefish	1,264,000	- 21	1,593,000
Herring, sea	135,000	+207	44,000
Mullet	37,000	+	4,000
Smelt	935,000	+	40,000
Catfish and bullheads	3,000	- 77	13,000
Lake trout	8,000	- 65	23,000
Oysters	126,000	+ 26	100,000
Scallops	116,000	+107	56,000
Shrimp (including shrimp meat)	617,000	+ 21	512,000

YEARLY INVENTORY OF STOCKS IN NEW YORK WAREHOUSES IMPORTANT FACTOR IN 41 PERCENT DECREASE

On May 1 the records of holdings of fishery products in New York City's cold-storage warehouses dropped 41 percent under April 1 and 28 percent below May 1, 1944, according to the Service's Market News office in that city. Over 1,500,000 pounds of this decrease may be attributed to changes in records resulting from yearly inventories of holdings made by some warehouses who found their actual stocks far below pre-audit records. A cancellation of over $\frac{1}{2}$ million pounds of chinook salmon was made by one warehouse, while other major species such as cod fillets, halibut, mackerel, and sablefish also were reduced. Practically all species were in some way affected by the check of their records.

Approximate figures arrived at on daily movements in cold-storage warehouses for the month of April 1945 follow:

	IN	OUT
Salt-water	976,000	2,237,000
Fresh-water	266,000	468,000
Shellfish, etc. ..	113,000	703,000
Total	1,355,000	3,418,000

New York Cold-storage Holdings

Item	May 1, 1945	May 1, 1945 compared with Apr. 1, 1945	May 1, 1944	Apr. 1, 1945	May 1, 1944
	Pounds	Percent	Percent	Pounds	Pounds
Total fish and shellfish	5,193,000	-41	- 28	8,847,000	7,255,000
<u>Important Items:</u>					
Fillets:					
Cod	625,000	-29	+160	877,000	240,000
Haddock	195,000	- 9	+ 30	214,000	150,000
Flounder, fluke, etc.	182,000	-24	- 38	240,000	294,000
Halibut	230,000	-63	+	624,000	14,000
Herring, sea	184,000	- 5	- 4	193,000	191,000
Mackerel	124,000	-73	- 54	463,000	268,000
Sablefish	595,000	-29	+ 49	894,000	399,000
Salmon, king (chinook)	286,000	-74	- 17	1,113,000	345,000
Smelt	210,000	-51	+ 48	426,000	142,000
Unclassified, salt-water	401,000	-31	- 61	583,000	1,039,000
Whitefish	339,000	- 6	- 3	360,000	351,000
Shrimp (prawn)	560,000	-48	+ 85	1,086,000	302,000
Butterfish	50,000	-45	- 83	91,000	286,000
Scup (porgy)	24,000	-56	- 94	54,000	373,000
Shad	6,000	-54	- 97	13,000	235,000
Striped bass	68,000	-33	- 78	102,000	305,000

The actual difference between the movement out and the movement in amounts to 2,063,000 pounds; whereas, a decrease of 3,654,000 pounds is shown in the monthly tabulation. Therefore, approximately 1,591,000 pounds were cancelled following the inventories.

The continued consumer demand for fish to offset the meat shortage, probably was the prime factor for the reduction in stocks. Although species such as cod, croaker, blackback flounder, haddock, mackerel, shad, lemon sole, and whiting were received at Fulton Market in good quantity, very little found its way into cold-storage because of the unusual demand for fresh fish.

CHICAGO COLD-STORAGE HOLDINGS CONTINUE MARKED DECLINE DURING APRIL

The total public cold-storage holdings of fish and shellfish in Chicago on April 26 amounted to 2,375,000 pounds, according to the Service's Chicago Market News office. This indicated a decline of 32 percent during April and of 61 percent from April 27, 1944.

Compared with the last Thursday in March, most major species, particularly lake herring, lake trout, salmon, whiting, shrimp, and halibut, showed declines.

Compared with April 27, 1944, the following important items decreased by large amounts: Blue pike and sauger, lake herring, lake trout, and whitefish. A marked increase in holdings of shrimp occurred in this 12-month period.

The wholesale fish dealers of Chicago during April continued to search the United States and Canada for fish and shellfish to purchase. The demand for seafood products was excellent in the area, and the problem was to find sufficient supplies to satisfy this demand.

Chicago Cold-storage Holdings

Item	Apr. 26, 1945	Apr. 26, 1945 compared with Mar. 29, 1945		Mar. 29, 1945	Apr. 27, 1944
	Pounds	Percent	Percent	Pounds	Pounds
Total fish and shellfish	2,375,000	- 32	-61	3,496,000	6,086,000
<u>Important Items:</u>					
Blue pike and sauger	86,000	- 25	-87	115,000	641,000
Cods	64,000	- 35	-32	99,000	94,000
Lake herring	67,000	- 51	-87	136,000	507,000
Lake trout	197,000	- 48	-67	376,000	597,000
Pickering	23,000	- 18	-88	28,000	188,000
Whitefish	477,000	- 8	-65	518,000	1,369,000
Yellow perch	21,000	+110	-85	10,000	141,000
Yellow pike	23,000	+360	-83	5,000	135,000
<u>Filletts:</u>					
Cod	217,000	- 18	-34	265,000	328,000
Haddock	127,000	+ 67	+31	76,000	97,000
Rosefish	108,000	+ 4	- 1	104,000	109,000
Halibut	39,000	- 79	+39	188,000	28,000
Mackerel	53,000	- 34	-55	80,000	158,000
Salmon	82,000	- 47	-40	156,000	136,000
Whiting	1,000	- 99	-99	148,000	199,000
Shrimp	342,000	- 29	+	481,000	57,000
Spiny lobster tails	61,000	- 29	-45	86,000	111,000

BOSTON COLD-STORAGE HOLDINGS AT LOW EBB

Cold-storage holdings of fishery products in Boston amounted to 2,190,000 pounds on April 25, according to the Service's Market News office in that city. This was a decrease of 36 percent compared to March 28 and 65 percent less than a year previous.

Of the principal items, cod, pollock, and rosefish fillets fell by 10, 33, and 27 percent, respectively, from March 28. Mackerel holdings provided the largest decrease of any one item. Heavy withdrawals of smelt were evident in a 26 percent decrease in stocks of this species. Shrimp stocks were also greatly reduced. Holdings of shrimp on April 25 were 78 percent less than those of a year previous. Haddock fillet holdings gained 47 percent over March 28 but were 67 percent smaller than on April 26, 1944.

Whiting holdings on April 28 in 11 plants in New England showed a decrease of 56 percent compared to March 31. Compared to April 29, 1944, these holdings registered a gain of 47 percent. The April 28 holdings of dressed, H&G fillets and skuljoes, round whiting, and animal food totaled 368,000 pounds.

Boston Cold-storage Holdings					
Item	Apr. 25, 1945	Apr. 25 compared with		Mar. 28, 1945	Apr. 26, 1944
	Pounds	Percent	Percent	Pounds	Pounds
Total fish and shellfish	2,190,000	-36	-65	3,397,000	6,310,000
<u>Important Items:</u>					
<u>Fillets:</u>					
Cod	137,000	-10	-88	153,000	1,125,000
Flounder	-	-	-	26,000	235,000
Haddock	220,000	+47	-67	150,000	667,000
Mackerel	-	-	-	-	302,000
Pollock	67,000	-33	-60	100,000	166,000
Rosefish	29,000	-27	-75	40,000	118,000
Mackerel	123,000	-79	-37	590,000	195,000
Smelt	439,000	-26	-	596,000	440,000
Scallops	154,000	+1	-7	152,000	165,000
Shrimp	42,000	-75	-78	168,000	191,000

CANADIAN COLD-STORAGE HOLDINGS OF MAY 1 SHOW DECREASE

Holdings of frozen fresh fish in Canadian cold-storage plants on May 1, totaled 14,436,000 pounds, representing a decrease of 6 percent compared with stocks on April 1 and 18 percent below those held on May 1, 1944, according to data furnished by the Dominion Bureau of Statistics.

Canadian Cold-storage Holdings					
Item	May 1, 1945	May 1 compared with		Apr. 1, 1945	May 1, 1944
	Pounds	Percent	Percent	Pounds	Pounds
<u>Frozen fresh fish</u>					
Total holdings	14,436,000	-6	-18	15,304,000	17,651,000
<u>Important Items:</u>					
<u>Cod:</u>					
Whole	531,000	-29	-61	748,000	1,369,000
Fillets	1,967,000	+26	-44	1,562,000	3,523,000
<u>Haddock:</u>					
Whole	185,000	-1	-47	187,000	347,000
Fillets	561,000	+44	+19	390,000	473,000
Halibut	1,167,000	-26	+47	1,585,000	793,000
Mackerel	196,000	-36	-5	308,000	206,000
Salmon	1,204,000	-36	-30	1,885,000	1,724,000
Sea herring	6,541,000	-1	+177	6,622,000	2,358,000
Pickrel	43,000	-56	-89	97,000	394,000
Tullibee	157,000	-24	-82	207,000	875,000
Whitefish	424,000	-16	-72	502,000	1,500,000
<u>Frozen smoked fish</u>					
Total holdings	1,145,000	-11	-21	1,291,000	1,455,000
<u>Important Items:</u>					
Finnan haddie (haddock)	50,000	-37	-70	79,000	164,000
Fillets of cod, haddock, etc.	830,000	+39	+1	599,000	823,000
Sea herring (kippers)	196,000	-32	-46	290,000	362,000

CANADIAN FREEZINGS IN APRIL DROP 15 PERCENT FROM MARCH

Freezings of fresh fish in Canadian cold-storage plants totaled 5,146,000 pounds during April, according to data furnished by the Dominion Bureau of Statistics. This was a decrease of 15 percent compared with March and an increase of 8 percent above April 1944.

Freezings of Fishery Products in Canadian Cold-storage Plants

Item	April 1945	April compared with		March 1945	April 1944
	Pounds	Percent	Percent	Pounds	Pounds
Frozen fresh fish					
Total freezings	5,146,000	-15	+ 8	6,056,000	4,781,000
Important Items:					
Cod:					
Whole	283,000	-23	+ 45	367,000	195,000
Fillets	2,713,000	+ 3	+ 18	2,629,000	2,298,000
Haddock:					
Whole	39,000	-85	- 66	255,000	116,000
Fillets	600,000	-46	+105	1,119,000	293,000
Halibut	220,000	- 8	+156	240,000	86,000
Salmon	20,000	-94	- 41	361,000	34,000
Sea herring	337,000	-13	- 23	389,000	437,000
Whitefish	73,000	+ 6	- 68	69,000	231,000
Frozen smoked fish					
Total freezings	1,029,000	-10	+ 11	1,139,000	929,000
Important Items:					
Fillets of cod, haddock, etc.	959,000	- 5	+ 15	1,008,000	833,000
Sea herring (kippers)	66,000	-27	+ 20	91,000	55,000

AMDT. 30 TO MPR-364 EFFECTIVE MAY 16

Excerpts from Amdt. 30 to MPR-364--Frozen Fish and Seafood follow:

Maximum Price Regulation No. 364 is amended in the following respects:

- Section 2 (g) is revoked.
- Section 3 (f) (1) is redesignated section 3 (f) and section 3 (f) (2) is revoked.
- In the table of base prices in section 13, Schedules Nos. 25 and 60 are amended to read as follows:

Schedule No.	Name	Item No.	Style of processing	Size	Base price per pound
25.....	Red cod or Rock cod Pacific (<i>Sebastes</i> species) ¹¹	1	Round.....	All sizes.....	\$0.05 1/4
		2	Drawn.....	All sizes.....	.30
		3	Dressed.....	All sizes.....	.13
60.....	Smelts (Columbia River <i>Eulachon</i>) (<i>Thaleichthys pacificus</i> or any <i>Argentinidae</i> species) ¹	1	Fillets.....	All sizes.....	.38
		2	Round.....	All sizes.....	.30
		3	Dressed.....	All sizes.....	.28

3. In section 13, following the table of base prices, footnote 11 is added to read as follows:

¹¹ For line caught red cod (rock cod) landed fresh in California in Marin County or any point south and delivered in frozen form to the purchaser in California, Nevada, or Ari-

zona, add 2 1/4 cents to the listed base price for round, drawn and dressed fish and add 1 1/4 cents to the listed base price for fillets.

This amendment shall become effective May 16, 1945.

Issued this 16th day of May 1945.

This amendment was issued in conjunction with Amdt. 45 to MPR-418 (Fishery Market News, June 1945, p. 33).

Canned and Cured Fish Trade

CALIFORNIA TUNA PACK FOR FIRST FOUR MONTHS 6 PERCENT BELOW 1944

The production of canned tuna by California packers during April totaled 190,991 standard cases, according to the California Division of Fish and Game. This exceeded the March pack by 68 percent but was 4 percent less than the production in April 1944. The total pack during the first four months of 1945 amounted to 479,065 cases, 6 percent under the production for this period in 1944.

The pack of mackerel during April was 1,582 standard cases compared with 70 cases canned in February, and none in April 1944. The 4-month pack of 60,490 cases was 28 percent below the pack of the same period in 1944.

California Pack of Tuna and Mackerel--Standard Cases*

Item	April 1945	March 1945	April 1944	Four mos. ending with April--	
	Cases	Cases	Cases	1945	1944
Tuna:					
Albacore	-	-	-	1,448	207
Bonito	5	29	26	1,524	676
Bluefin	10,586	14,904	25,844	30,944	41,104
Striped	14,466	4,475	55,483	38,752	96,849
Yellowfin	103,058	58,790	65,558	276,441	222,601
Yellowtail	34	69	60	685	679
Flakes	62,842	35,756	49,470	129,271	143,227
Tonno style	-	-	2,004	-	3,659
Total	190,991	114,023	198,445	479,065	509,002
Mackerel	1,582	70	-	60,490	84,444

*Standard cases of tuna represent cases of 48 7-ounce cans, while those of mackerel represent cases of 48 1-pound cans.

SHRIMP CANNING ALMOST INACTIVE IN APRIL

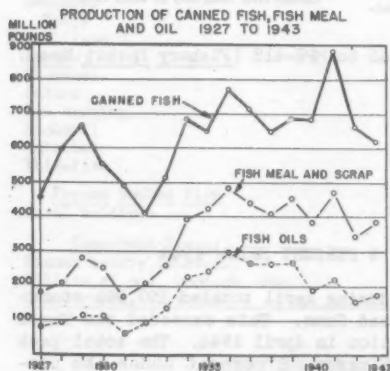
With only 139 standard cases of shrimp canned in April, operations of the South Atlantic and Gulf canneries under the Seafood Inspection Service of the U. S. Food and Drug Administration became virtually inactive, according to the New Orleans Market News office of the Fish and Wildlife Service. A reduction of canning operations is normal in the spring and summer months.

Wet and Dry Pack Shrimp in all Sizes in Tin and Glass--Standard Cases*

MONTH			SEASON		
1945	1945	1944	1944-45	1943-44	5-yr.-average
Apr. 1-Apr. 28	Mar. 4-Mar. 31	Apr. 2-Apr. 29	July 1-Apr. 28	July 1-Apr. 29	July 1-Apr. 30
139	1,492	646	409,619	383,095	637,718

*All figures on basis of new standard case--48 No. 1 cans with 7 oz. per can in the wet pack and 6½ oz. per can in the dry pack.

1943 CANNED FISH AND BYPRODUCTS VALUED AT OVER 200 MILLION DOLLARS



Canned fishery products and byproducts were produced in 579 plants in the United States during 1943, according to Current Fishery Statistics No. 156 published by the Fish and Wildlife Service. Over 2.2 billion pounds of fishery products, valued at over 200 million dollars, were produced in these plants.

Canned products, valued at \$141,156,000, totaled 16,716,000 standard cases or 620,081,000 pounds. Liver oils were valued at \$14,842,000; other oils at \$14,971,000; fish meal and scrap at \$13,629,000; and other products combined had an evaluation of \$15,694,000.

This 20-page bulletin may be obtained free of charge from the Fish and Wildlife Service, Washington 25, D.C.

1945 CANNED FISH RESTRICTIONS AMENDED

Canners of fish flakes produced from cod, haddock, hake, pollock, and cusk are now required to hold for delivery 100 percent of their current production to the Government, the War Food Administration announced on May 16, in amending its canned fish set-aside order. This action is taken in Amdt. 9 to WFO-44, effective May 20, 1945, and applies restrictions to fish flakes for the first time.

Designed to fill increased requirements of the Navy, the effect of the amendment is to add the canned fish of one more class of fish to the nine other classes already being reserved for the Government. The new amendment applies only to fish flakes produced in Atlantic coast canneries, and does not change the 80 percent requirement for the canned fish of the nine other classes of fish.

WFA ASKS FOR OFFERS OF CANNED TUNA

In order to meet definite supply needs, the War Food Administration in Announcement Awd-480, on May 2, announced contemplated purchases by the Commodity Credit Corporation of a quantity of canned tuna (light meat) from the 1945 pack, and that offers for the sale of this commodity may now be submitted.

Offers must be submitted on prescribed Offer Form PBO-480 at any time prior to July 1, 1945.

The price to be inserted in the offer should not exceed the Office of Price Administration ceiling price on sales to Government agencies as established in MPR-299. Canners are permitted to charge the buyer additional costs of export packaging or marking required by the Government if such costs are not usually incurred on domestic shipments for private account. If such expenses are required to be incurred, contractor may claim them in accordance with OPA Supplementary Order No. 106.

Further information with respect to this program may be obtained from M. W. Wallar, of the Washington office. Telephone: REpublic 4142, Extension 3559.

TERMS AND CONDITIONS

In submitting an offer to sell, the terms and conditions of this announcement and those set forth in "Standard Contract Conditions" (Form PBT-400) except Articles 6, 9, and 24 thereof, shall become a part of the offer to sell and upon acceptance by the CCC, the offer and acceptance will constitute a valid and binding Contract. Form PBT-400 supersedes Standard Contract Conditions (Form FDA-474).

SPECIFICATIONS

Except as amended herein and except as to packaging and packing, the Fish shall be in accordance with paragraph E-1, Federal Specification FF-T-771, dated March 31, 1931, and amendments thereto, viz:

"Shall be prepared from fresh, sound Tuna Fish which has been well bled and butchered. Shall be forecooked until the flesh can be easily separated from the bones. The light meat shall be carefully separated from the skin, bones, and dark meat. The light portion only shall be used and shall be cut into as large pieces as is practicable to fill the cans. Edible vegetable oils shall be added, the kind of oil to be declared."

Fish shall be "Standard" pack in No. $\frac{1}{2}$ tuna tins (307x113). The term "Standard" pack means wholesome cooked meat, regardless of size of fish, which when packed contains at least 75 percent large pieces of solid meat, free from dark meat, bones, skin, extraneous tissue, and debris.

PACKAGING

Cans: If cans are manufactured from timplat lighter than 1.25 hot dipped plate, the inside and outside of such cans shall be enameled. Cans shall be sound and clean, free from rust and serious dents at time of delivery.

Labels: Cans shall be labeled with Contractors regular commercial labels.

Cases: Cases shall be domestic-type shipping cartons, 80-point solid fibre or better or 325-pound test corrugated or better. Cases shall be double strapped unless otherwise directed by CCC.

Marking: Each case shall be marked with the name of the Contractor, Commodity, Contract number, code number, net weight of cans and number of cans per case and a shipping mark which may be prescribed by CCC prior to delivery.

WFA ASKS FOR OFFERS OF CANNED PILCHARDS

The War Food Administration announced on May 28, in Announcement Awd-498, that it will now receive offers for the sale of canned pilchards required to be set aside pursuant to War Food Order No. 44.

The contract terms and conditions are set forth in three separate documents: Form FDA-474, "Standard Contract Conditions," contains conditions which may apply to purchase of all commodities; Form PBT-401, "Canned Fish - General Contract Conditions," contains additional terms applying to purchases of canned fish; and Form PBO-498, "Canned Pilchards Offer of Sale," which details the conditions applying specifically to this type of fish.

Offers must be submitted on prescribed Offer Form PBO-498 at any time prior to September 1, 1945.

The contract form is being issued earlier than usual this year in order that canners may plan their operations. It is possible that minor changes will be made in the program but these can be covered by amendments to the contract before the opening of the canning season.

All No. 1 oval cans should be packed with tomato sauce. Natural style pilchards in No. 1 oval cans are not acceptable unless prior written approval has been granted to canner by a CCC contracting officer. Eight-ounce short (211x300) or $\frac{1}{2}$ oblong cans will be accepted either natural style or with tomato sauce, but fillets and "short cuts" in any size cans are not acceptable.

When tomato sauce is used, No. 1 oval and No. 300 (300x407) cans shall have added at the time of packaging not less than $1\frac{1}{2}$ ounces of tomato sauce having a specific gravity of not less than 1.06 before the addition of salt and spices, except that tomato sauce of a lower specific gravity may be used provided sufficient additional sauce is added so that the total amount of tomato solids of the lower specific gravity of tomato sauce shall be equal to the total amount of tomato solids in $1\frac{1}{2}$ ounces of tomato sauce having a specific gravity of 1.06 before the addition of salt and spices.

There shall be added to a smaller or larger size container an amount of tomato sauce proportionate to that added to the No. 1 size can.

Tomato sauce shall be made from whole ripe tomatoes and may have added salt and spices but no sugar, and must comply with the applicable requirements of the Federal Food, Drug, and Cosmetic Act and amendments and regulations thereunder. At time of cut-out, tomato sauce shall be of good consistency and not excessively oily.

If any lot of fish fails to meet contract specifications, such failure does not automatically release this lot for sale to the civilian trade. It is suggested that the canner furnish the CCC with complete information regarding the lot and the reason for its rejection by the inspector and also make a proposal regarding the disposition of the lot.

With reference to labeling and cases: All cans must be labeled "Pilchards" except that "Sardine" labels will be accepted when lots labeled "Sardines" are delivered to the U. S. Army or other U. S. Military Service. Lots bearing "Sardine" labels must be so indicated on the "Notice of Tender of Delivery." All cases must be strapped, preferably with two crosswise straps, but parallel strapping is acceptable. If three or four straps are required, as may be necessary on some deliveries to the Army, these extra straps must be ordered by CCC on the "Notice to Deliver." Three straps are usually preferred by the Army on wood cases. V2 cases with sleeves will be required on some lots which will be negotiated prior to delivery.

Excerpts from Form PBO-498 follow:

B. If cans are inside and outside enameled, the applicable price shall be increased at the appropriate following rate:

48/1 oval	\$0.096 per case	96/8-ounce	\$0.082 per case
48/300	<u>0.060</u> per case	48/ $\frac{1}{2}$ oblong	<u>0.060</u> per case

If the No. 1 oval cans are manufactured from 1.25 hot dipped plate and are inside enameled only, the applicable price shall be increased by \$0.036 per case of 48 cans.

If any component parts of the No. 300 cans are manufactured from plate other than 1.25 hot dipped timplate, such parts shall be inside and outside enameled and the applicable price shall be increased at the appropriate following rate per case of 48/300:

Enameled Ends, Plain Body - \$0.024

Enameled Body, Plain Ends - \$0.036

III. SPECIFICATIONS: The fish delivered hereunder shall meet the following specifications:

A. Fish shall be firm, of good appearance, well cleaned and practically unbroken. Cans shall be packed as full as practicable. In round cans the length of the fish shall be packed parallel to the side of the can; in oval and other flat type cans the length of the fish shall be packed parallel to the bottom of the can. The average net content of the No. 300 (300x407) can or the No. 1 oval can shall be not less than 15 ounces and shall contain not more than twelve nor less than four fish. If other sizes of cans are used, the net content shall be in the same proportion as the relative size of the can. The fish shall be packed natural or with added oils or sauces as may be specified by CCC.

B. Definitions: For the purpose of these specifications, the following definitions shall apply:

1. The term "natural" means without the addition of any condiments except brine or salt, but may have added oil of the same species of fish.
2. The term "net content" means the total weight of the fish and liquid in the can.
3. The term "well cleaned" means that the heads shall be removed, the red and green feed that has exuded from the stomach or entrails shall not be present, shall be practically free from scales, and not more than five (5) percent of fish may contain entrails.
4. The term "entrail" is defined as any portion of the stomach or entrail exceeding $\frac{1}{2}$ inch in length, except that any portion containing red or green feed shall be scored as an entrail regardless of its length.
5. "Practically free from scales" means that not more than 5 percent by count of fish may possess scales on each fish which in the aggregate exceeds one-tenth of the surface area. Fish which possess scales covering one-tenth or less of the surface area are not scored.

WFA AMENDS EAST COAST SARDINE AND SEA HERRING PURCHASE FORM

In Supplement No. 2 to Announcement Awd-401, issued May 26, the Commodity Credit Corporation of the War Food Administration, as the purchaser of canned Maine sardines and canned sea herring required to be delivered to Government agencies by WFO-44, announced that it will accept tenders for delivery to it of the following styles of pack:

#300 can - Natural Style
 #1 oval can - Mustard or Tomato Sauce
 #3/4 can - Mustard or Tomato Sauce
 #1/4 can - Oil of Mustard

Mustard style pack delivered to CCC may be not more than 10 percent of a canner's pack for the year.

If mustard sauce is used the quantity of sauce per case shall conform to the requirements of the applicable laws of the State of Maine.

Effective with fish packed on June 1, 1945, no other styles of pack will be accepted without prior written authority from a contracting officer of CCC.

OPA ISSUES MPR-587 TO PRICE MISCELLANEOUS CANNED ITEMS

A uniform canners' base ceiling price of \$4.85 per case of 48 15-ounce cans has been established for canned Pacific squid, the Office of Price Administration announced on May 23, in issuing MPR-587--Miscellaneous Canned Fish and Seafood.

The new canners' price, which becomes effective May 28, will result in slight reductions in retail ceiling prices for this seafood item, OPA said.

Before the regulation, canners' maximum prices were controlled by the General Maximum Price Regulation, which established the highest prices individual sellers charged in March 1942 as their ceiling prices. No Pacific squid was canned during March 1942, however, because tin was not allocated for this use until November of that year.

Only two canners were producing the item in 1941, and the new price of \$4.85 per case is in line with the canners' prices for that year, OPA said, with allowance for increased raw material and production costs since that time.

Although only minor quantities of Pacific squid were canned in pre-war years, the product has recently gained major importance because of large purchases by the War Food Administration.

Seven canners have requested approvals of maximum prices for the product this year. The new specific base ceiling price should prove more practicable than individual prices, OPA said, and should also facilitate negotiation of contracts by WFA, the principal buyer at the present time.

The base price of \$4.85 per case of 48 No. 1 tall (15-ounce) cans is for Pacific squid, packed in its own ink. The price is f.o.b. the shipping point nearest the cannery. The canner must deduct from the base price his customary allowances, discounts, and differentials to purchasers of different classes.

Canners' maximum prices for the product in other styles of pack or other sizes and types of containers will be determined by OPA upon application of individual sellers.

Provisions applying to deductions required for sales made to Government procurement agencies will not apply to sales of canned Pacific squid to WFA until August 1, 1945. WFA has negotiated contracts (that will expire on or before July 31 of this year) on the basis of a price of \$4.85 per case with a cash discount of $1\frac{1}{2}$ percent. To avoid the necessity of renegotiating these contracts now in effect, the new regulation permits the $1\frac{1}{2}$ percent discount for sales to WFA until the contracts expire.

Canners are directed to notify wholesalers, retailers, and other distributors of the new price established by this regulation. Wholesalers and retailers will recalculate their maximum prices under MPRs-421, 422, and 423.

Excerpts from MPR-587 follow:

SECTION 1.1 What this regulation does. This regulation fixes the maximum prices at which canners, and in some cases importers, may sell the varieties of canned fish and sea food for which maximum prices are fixed in the following articles.

SEC. 1.2 Relation to other regulations. (a) The provisions of this regulation supersede the provisions of the General Maximum Price Regulation and the provisions of the Maximum Import Price Regulation (and any order issued thereunder) with respect to sales and deliveries for which maximum prices are established by this regulation.

(b) The maximum price at which any person may export canned fish or sea food must be determined in accordance with the provisions of the Second Revised Maximum Export Price Regulation, as amended, issued by the Office of Price Administration.

ARTICLE II—CANNED PACIFIC SQUID

SEC. 2.1 Maximum prices for sales by canners—(a) General rule. The canner's maximum price, f. o. b. shipping point nearest the cannery, for sales of canned Pacific squid, is the price listed below, less his customary allowances, discounts, and differentials to purchasers of different classes.

Container size	Style of pack	Price per 48 cans
No. 1 tall.....	Natural.	\$4.85

SEC. 2.2 Definitions. (a) "Canned Pacific squid" means squid of the species *Loligo opalescens* packed in hermetically sealed containers.

(b) "No. 1 tall" means a can (301 x 411) packed to a net weight of not less than 15 oz. of Pacific squid.

This regulation shall become effective May 28, 1945, except as to sales or deliveries of canned Pacific squid which prior to May 28, 1945 has been received by a carrier, other than a carrier owned or controlled by the seller, for shipment to the purchaser.

OPA REVISES CURED AND SMOKED FISH REGULATIONS

Wagon distributors of smoked fish will have the same mark-ups as other wholesalers as the result of a new measure that established wholesalers' cents-per-pound additions to net costs, the Office of Price Administration announced May 5th.

The new mark-ups, effective May 9, 1945, are in line with the percentage mark-ups over net cost that were previously allowed to those who met the qualifications of wholesalers under MPR-421 (Ceiling Prices of Certain Foods Sold at Wholesale). All wholesalers will now price these items under MPR-550 (Cured and Smoked Fish).

In addition, the specific mark-ups will relieve wagon distributors from the squeeze resulting to them from being held to their March 1942 prices under the General Maximum Price Regulation, OPA said.

Present retail ceiling prices will not be affected for the four types of smoked fish to which the action applies. These four types are:

- (1) Smoked mild-cured salmon (lox) (2) Smoked kippered salmon (3) Smoked sablefish (4) Smoked whitefish

Processors' ceiling prices are increased one cent a pound for smoked kippered salmon, and two cents a pound for smoked sablefish, by the measure. The increased prices are based upon an analysis of additional data and a re-examination of the data upon which the original processors' prices were fixed. The new prices will more accurately reflect the shrinkage resulting from smoking the fish, OPA said.

A base maximum price of 63 cents a pound has also been established for the first time for sliced mild-cured salmon when sliced by a processor.

Cents-per-pound mark-ups over net cost that are allowed to wholesalers for sales of cured and smoked fish by the amendment are:

	Cash and carry sales	Service and delivery sales
Smoked mild-cured salmon, slabs	5	10
Sliced smoked mild-cured salmon (purchased sliced)	3	8
Sliced smoked mild-cured salmon (purchased in slabs & sold sliced) ..	3	8
Smoked kippered salmon	5	10
Smoked sablefish	4	9
Smoked whitefish	4	9

Amdt. 3 to MPR-550--Cured and Smoked Fish--and Amdt. 21 to MPR-421--Ceiling Prices of Certain Foods Sold at Wholesale--both became effective May 9.

FISHERY ITEMS REMOVED FROM MPR-421

The OPA announced on May 4 that Amdt. 21 to MPR-421 excludes from that regulation the following smoked fish items: mild-cured salmon, kippered salmon, whitefish, and sablefish.

These items are being provided simultaneously with dollars-and-cents prices by amendment to MPR-550.

Byproducts Trade

MUSSEL SHELL PRICES REVISED

Amdt. 6 to Supplementary Regulation 14J, establishing dollars-and-cents prices for diggers' and dealers' sales of certain mussel shells secured along the banks of the Tennessee, Cumberland, Caney Fork, and Ohio Rivers, was issued May 14 by the OPA.

Specific dollar-and-cents prices for diggers' sales of specific types of mussel shells are fixed and dealers are permitted to add \$9.00 per ton to diggers' maximum price for each type to establish their prices. The prices established are for the balance of the calendar year 1945 only, after which prices revert to prices established under the General Maximum Price Regulation or other specific orders of OPA.

The new section is in effect a continuation of Sec. 6.46 of Revised Supplementary Regulation No. 14 which establishes diggers' maximum prices for the period between April 22

and December 31, 1944. The war has delayed dam construction on the Tennessee and the waters have not risen as quickly as was anticipated. Shell gathering is continuing on a reduced scale. Excerpts from Amdt. 6 follow:

A new section 4.8 is added to read as follows:

Sec. 4.8 *Mussel shells.* This section establishes maximum prices for sales and deliveries by diggers and dealers of "Mixed", "Washboard", "Pink", "Niggerhead" and "Sandshell" mussel shells used in the production of pearl buttons, which have been secured along the banks of the Tennessee, Cumberland, Caney Fork and Ohio rivers.

(a) *Maximum prices of diggers.* Diggers may sell and deliver mussel shells of the types listed below at prices no

higher than the maximum prices set forth for each type.

	Per ton, f. o. b. river bank
For all "Washboard" or "Pink" shells	\$18.75
For "Mixed" shells	40.00
For "Niggerhead" shells	62.50
For "Sandshell" shells	75.00

(b) *Maximum prices of dealers.* Dealers may sell and deliver mussel shells of the types for which diggers' maximum prices are established by paragraph (a) above at the prices so established for each type plus \$9.00 per ton. Dealers'

prices as established by this paragraph are f. o. b. shipping point and are subject to the same terms, allowances, and conditions of sale customary in March 1942 on sales or deliveries of mussel shells to manufacturers of "pearl" buttons.

(c) *Definitions.* For the purposes of this section, dealer means a person who delivers to "pearl" button manufacturers, mussel shells which he has obtained from the digger of the shells.

This section shall expire on December 31, 1945.

This section shall become effective on the 19th day of May 1945.

Foreign Fishery Trade

ICELAND REBUILDING ITS FISHING FLEET

Iceland is undergoing economic planning to meet the impact of post-war competition, according to an economic report from the American Legation at Reykjavik, Iceland. Revitalization of the country's industrial and economic life is considered basic in the approach to the problems. Among the chief objectives of Iceland's program is "rebuilding of the fishing fleet, modernization and expansion of industries relating to the fisheries, such as herring oil and meal factories, fish-freezing plants, canning factories, and ship-building yards."

A summary of Iceland's fishery situation follows:

Of greatest importance to Iceland today are its fisheries. Just off the coasts of Iceland, the sea is enormously rich in fish. Cod, haddock, and halibut predominate in the winter catch. Herring fills the nets in summertime. Steam trawlers, diesel powered, and gasoline driven boats of all sizes, nearly 1000 vessels, varying from several hundred tons down to some three tons are all used in the one big industry of Iceland.

Although 24 percent of the country's labor force is estimated to be engaged in fishing and related industries, the activities of this maritime pursuit are directly and indirectly a source of profit to countless others. This is evidenced in a statement issued by the National Bank of Iceland wherein it is indicated that more than 80 percent of Iceland's 1944 national income was derived from exports of fish and fish products.

Numerous industries connected with the fisheries which have in recent years been more than usually active, continued to be very busy in 1944. Among them are boat building, marine repair shops, paint factories, wooden and paper fish box factories, net making and water-repellent clothing factories.

The general abandonment of production of wet-salted and dried fish in behalf of the more desirable fresh and frozen varieties continued as before. Fresh and frozen fish exported were 328,891,000 pounds in 1943 and 363,944,000 pounds in 1944. Dried and salted fish exports in these years were almost negligible.

All in all, the 1944 catch was one of the largest on record in recent times. This success was attained despite intermittent shortages of gear, mainly hemp and sisal lines. It is estimated that more than 880,000,000 pounds of fish were brought in and more than 512,000,000 pounds of fish and fish products were exported.

Iceland's Exports of Fish and Fish Products, 1943 and 1944

Item	1943		Item	1944	
	Pounds	Pounds		Pounds	Pounds
Salted & dried fish	6,214,619	4,530,542	Cod liver oil	12,232,420	14,055,569
Fresh & frozen fish	329,386,918	364,605,296	Meal	29,921,063	62,058,028
Herring, cured	6,328,400	3,937,800	Herring oil	66,054,321	58,250,177
Canned fish	271,533	453,142			

Most of the exports of fish and fish products went to Great Britain. Some quantities of canned fish and barrelled herring and several hundred tons of frozen fish were shipped to the United States. Great Britain acknowledged officially, for the first time, that during the war fully 70 percent of the fish her people consumed came from Iceland. However, as the year drew to a close, the British threatened to reduce imports of Icelandic fish both by refusing to renew the white fish contract of the previous year and by the permitting of fishing to resume in the North Sea. These possibilities aroused many fears that reduction in the prices and cutbacks in the industry would be an inevitable result. In March 1945, a contract was signed.

On the brighter side of the foreseeable future were the UNRRA negotiations for some 200,000 to 300,000 barrels of cured herring. The sale of such large quantities of herring could help at least partially to offset losses in amount of sales of whitefish to the British market.

The end of the war and impending competition from different fishing areas such as Norway and other Northern European lands has led to much emphasis on the part of both official and private groups to prepare the country to meet the new conditions when they arise. Stress has been and continues to be placed on refitting and further developing the fishing fleet with more modern and more efficient equipment. An order has been placed in Sweden for 45 vessels, 15 to be 50 tons and 30 to be 80 tons in size. Another order for an additional 50 vessels of the same sizes may be entered with Swedish firms in 1945.

Aside from the above-mentioned activities, plans were formulated to enlarge the herring oil and meal plants, both those owned by the Government and those owned by private groups. Herring catches during the past four years have been greatly in excess of the capacity of the reduction plants now in operation. The demand in Britain and other countries for herring meal for feeding cattle and herring oil for making margarine would appear to make the expansions a worthwhile investment. Some equipment for enlarging the plants arrived in 1944. More is expected in 1945 and 1946.

1945 IMPORTS OF GROUND FISH 12,002,000 POUNDS THROUGH APRIL

The Bureau of Customs reported on May 9 that through April 28, the 1945 imports of fresh or frozen fillets, steaks, etc., of cod, haddock, hake, pollock, cusk, and rosefish totaled 12,001,876 pounds. A tabulation follows:

Commodity	Apr. 1-28, 1945	Mar. 4-31, 1945	April 1944	Jan.-Apr. 1945	Jan.-Apr. 1944
Fish, fresh or frozen fillets, steaks, etc., of cod, haddock, hake, cusk, pollock, and rosefish.	4,152,323	3,940,872	2,717,766	12,001,876	9,228,269

OPA SETS PRICE CEILINGS FOR IMPORTED CANNED ANCHOVIES

Dollar-and-cent ceilings for sales by importers to independent retail stores and to industrial and institutional users of imported Spanish and Portuguese anchovies packed in olive oil were announced on May 21 by the Office of Price Administration.

The new prices became effective May 22, 1945, and apply to any brand of imported Spanish or Portuguese anchovies. They are ex-dock or ex-warehouse at the U. S. Continental point or port of entry, OPA said.

The action was taken to provide uniform price ceilings on sales by importers of Portuguese and Spanish anchovies. Previously, importers were required to apply to OPA for special prices of these items.

Order 357 under the Maximum Import Price Regulation became effective May 22. Excerpts follow:

(a) *Purpose of this order.* The purpose of this order is to establish separate item maximum prices at which Portuguese and Spanish anchovies (any brand), packed in olive oil, may be sold by importers to independent retail stores, industrial users and institutional users without having to make application to

the Office of Price Administration for the issuance of an individual order.

(b) *Application of this order; exception from this order.* The maximum prices established by this order apply only to sales of Portuguese and Spanish anchovies (any brand), packed in olive oil, to the classes of purchasers specified

herein. Sales to classes of purchasers other than those specifically set out are not authorized by this order.

(c) *Importers' maximum prices.* The maximum prices, on sales to the classes of purchasers named below, above which no importer shall sell and no person buying from an importer shall purchase, for

the following designated sizes of Portuguese and Spanish anchovies (any brand) packed in olive oil shall be as follows:

Sales by importers to—	Per case of (size)—		
	100/3 oz.	24/11-13 oz.	24/25-29 oz.
Independent retail stores.....	\$24.72	\$29.05	\$38.04
Industrial users.....	25.75	30.27	39.47
Institutional users.....	25.75	30.27	39.47

The maximum prices authorized above are ex dock or ex warehouse any United States Continental point or port of entry. For sales with delivery made at some other point, payments incurred for

transportation from dock or warehouse at point or port of entry to such other point may be added. Such transportation payments, however, shall not include the expense of local hauling or drayage within the metropolitan area of the point or port of arrival.

(d) *Terms of sale.* The importer shall grant, with respect to his sales of imported Portuguese and Spanish anchovies (any brand), packed in olive oil, for which maximum prices are established by this order, the discount for cash or prompt payment customarily granted in 1941, on sales of imported Portuguese and Spanish anchovies (any brand), packed in olive oil, to purchasers of the same class, unless a change therein results in a lower price.

(e) *Definitions.* An "independent retail store" is one that is not one of four or more stores under one ownership whose combined "annual gross sales" are \$500,000 or more.

An "industrial user" is any person who, either for his own commercial use or for resale, subjects an imported food item covered by this regulation, to a process that results in the production of a new and different article having a distinctive name, character or use; or who uses such food item as an ingredient or a component part of such an article.

An "institutional user" is a restaurant, hotel, club, hospital, or other similar establishment using an imported food item covered by this regulation in preparation or service of meals to individual consumers.

OPA'S PACIFIC REGION EXTENDS PRICE CEILINGS TO COOKED LOBSTER FROM MEXICO

Amendment No. 1 to Order No. 57 under OPA's Maximum Import Price Regulation, issued May 25, provides that the authority delegated by the original Order to the Regional Administrator of Region VIII shall extend to frozen cooked lobster as well as to cooked lobster imported or to be imported from Mexico.

Frozen cooked lobster is beginning to appear on the market in Region VIII and the reasons stated in the Opinion accompanying the original Order make it desirable to extend the delegation of authority to the frozen as well as the unfrozen commodity in order that maximum prices may be established in Region VIII in line with those applicable to frozen cooked lobster of domestic origin.

CANADA ALLOWS PORT PRIVILEGES TO U. S. VESSELS

In the interests of the war effort of the United Nations and under the authority of the War Measures Act, special port privileges were granted by the Dominion Government of Canada to United States fishing vessels fishing with long lines for lingcod, rockfish, grayfish, and sharks, by Order in Council dated April 12, 1945.

Privileges, which extend to the British Columbia Coast and are for the calendar year 1945, are as follows:

1. To purchase bait, ice, nets, lines, coal, oil provisions and all other supplies and outfits.
2. To ship crews.
3. To land their catches without the payment of duties, and
 - (a) Trans-ship them in bond to any port in the United States;
 - (b) Sell them in bond to such local dealer or dealers as may be properly authorized therefor by the Minister of National Revenue, which dealer shall export the same in compliance with the bonding requirements;
 - (c) Sell them for use in Canada on payment of duty.

Representations were received from the United States Government seeking continuation of such privileges from 1944 in the interests of furthering essential food production.

The fee on each license is to be, as heretofore, \$1.00.

Statistical Summaries

FISHERY PURCHASES BY WFA TOTAL \$598,000 IN APRIL

Canned sardines and vitamin A liver oil made up the bulk of WFA purchases in April, according to a report by the Commodity Credit Corporation of the WFA. Purchases of all

commodities by the CCC totaled \$83,309,800 in April, making \$435,539,200 the total for the first four months of 1945. The total for April fishery purchases was \$597,840.

Purchases of Fishery Products by WFA

Purchases of Fishery Products by WPA					
Commodity	Unit	April 1945		January-April 1945	
		Quantity	F.O.B. Cost Dollars	Quantity	F.O.B. Cost Dollars
<u>FISH</u>					
Herring, canned	Cases	4,350	24,109	6,486	34,478
Mackerel, "	"	1,745	8,436	101,130	515,413
Pilchards, "	"	5,239	19,758	548,064	2,116,670
Salmon, "	"	-	-	400,157	4,095,476
Sardines, "	"	71,605	308,596	174,428	742,684
Tuna, "	"	700	14,112	700	14,112
Clams, "	"	607	5,622	607	5,622
Squid, "	"	-	-	307,500	1,491,375
Fish, flaked, "	"	-	-	4,585	58,558
Total ... "	"	84,266	380,633	1,543,657	9,077,388
Fish, brine-cured	Pounds	-	-	40,000	8,000
" , dry-salted	"	-	-	1,109,570	179,533
" , smoked	"	180,000	18,000	431,600	42,960
Total	"	180,000	18,000	1,581,170	230,493
<u>BYPRODUCTS</u>					
Fish meal	"	-	-	60,000	2,325
Oyster shell	"	-	-	160,000	640
Oyster shell flour	"	-	-	160,000	560
Total	"	-	-	380,000	3,525
<u>VITAMINS</u>					
Vitamin A fish-liver oil	M Units	732,178	199,207	6,419,173	1,656,411
Grand Total		-	597,840	-	10,967,817

WHOLESALE AND RETAIL PRICES

From mid-March to mid-April, there was a small drop in retail fish prices throughout the United States, while prices for all foods rose slightly, reports of the Labor Department's Bureau of Labor Statistics indicate. Compared with a year previous, the mid-April food prices, including those for fish, showed general rises, although average prices for both pink and red salmon, canned, dropped considerably.

Wholesale and Retail Prices

Wholesale and Retail Prices				
Item	Unit	Percentage change from--		
Wholesale: (1926 = 100)		<u>Apr. 14, 1945</u>	<u>Mar. 17, 1945</u>	<u>Apr. 15, 1944</u>
All commodities	Index No.	105.5	+0.4	+1.6
Foods	do	105.5	+0.9	+0.5
Fish:		<u>April 1945</u>	<u>March 1945</u>	<u>April 1944</u>
Canned salmon, Seattle:				
Pink, No. 1, Tall	\$ per dozen cans	1.970	0	0
Red, No. 1, Tall	do	3.694	0	0
Cod, cured, large shore, Gloucester, Mass.	\$ per 100 pounds	13.500	0	+3.8
Herring, pickled, N. Y.	\$ per pound	12.0	0	0
Salmon, Alaska, smoked, N. Y.	do	35.0	0	0
Retail: (1935-39 = 100)		<u>Apr. 17, 1945</u>	<u>Mar. 13, 1945</u>	<u>Apr. 18, 1944</u>
All foods	Index No.	136.6	+0.5	+1.5
Fish:				
Fresh and canned	do	211.9	-1.2	+0.7
Fresh and frozen	\$ per pound	33.7	-1.3	+0.7
Canned salmon:				
Pink	\$ per pound can	23.4	-0.8	-2.9
Red	do	40.8	+1.2	-5.3

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